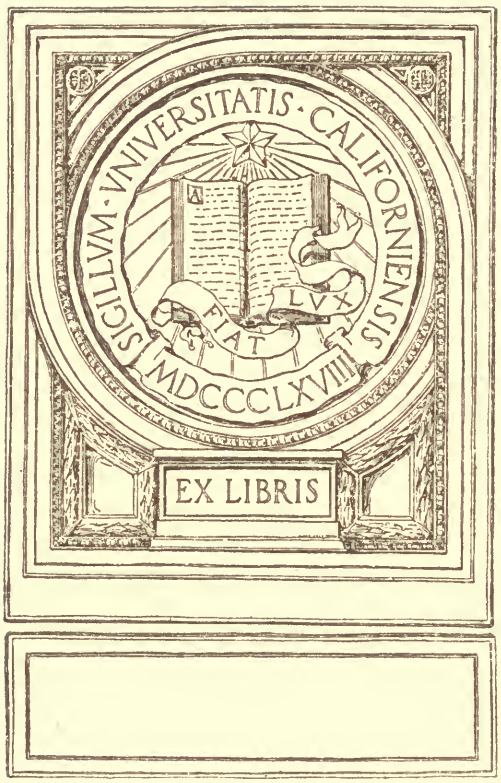
Jefferson as an Architect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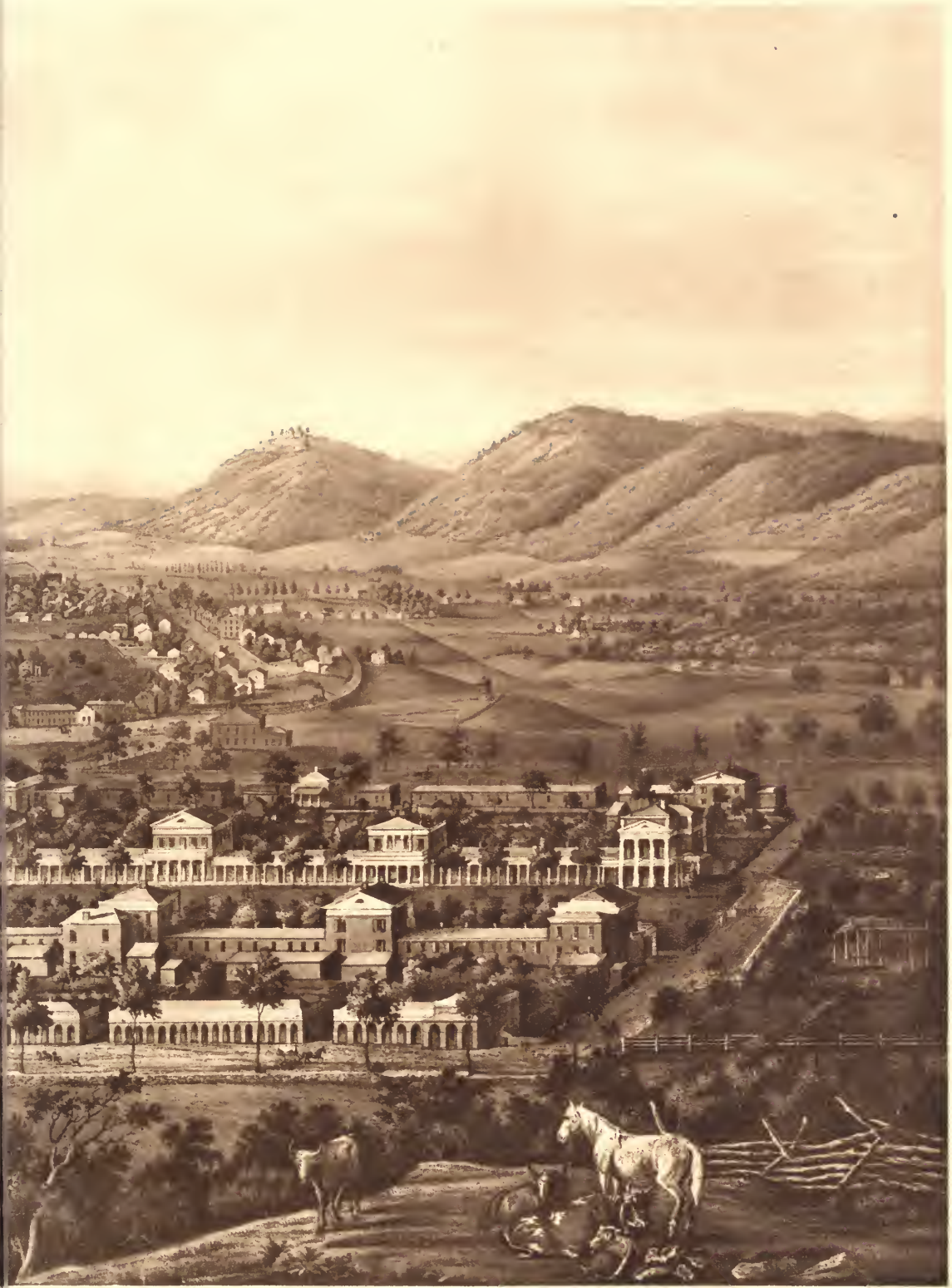

rlottsville and Monticello

ountain in 1856

Thomas Jefferson

AS AN ARCHITECT AND A DESIGNER OF LANDSCAPES

THOMAS JEFFERSON

As an Architect and a Designer of Landscapes

BY

WILLIAM ALEXANDER LAMBETH, M.D.

AND

WARREN H. MANNING

BOSTON AND NEW YORK

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Th. Jefferson

THOMAS JEFFERSON

As an Architect

THE revival of interest in Thomas Jefferson's versatility has stimulated anew a study of his work as an architect. This study has been accompanied by an increased appreciation of his very successful architectural achievements, and, as was natural, when one is told that a man without special training did accomplish so well what others with ample training so often have failed to accomplish, wonder and amazement have occasionally grown into skepticism.

During Jefferson's lifetime, and for a half-century thereafter, no question was raised as to who was the architect of Virginia's great seat of learning. Many were then living who had watched these buildings take their form under his hand. Many were then living whose own colonial homes were the offspring of his genius.

Aside from the successful character of the work itself, the only particular ground for doubting that Jefferson was the architect is based upon certain passages in his letters asking assistance in his undertaking.

On May 9, 1817, Jefferson wrote a letter to Dr. William Thornton, from which is taken the following oft-quoted

passage, "We are commencing here the establishment of a college; will you set your imagination to work and sketch some designs for us?"

Unquestionably, Jefferson sought aid from Thornton, for a copy of the original letter from which this passage is taken is now preserved in the archives of the University. Not only did he seek help from Thornton, but doubtless from many others among his extensive list of able acquaintances. While there is no evidence to show that Thornton complied with Jefferson's request, it is fair to assume that he did.

If we, however, read the entire letter from which the extract is made, and understand the character of the aid sought, we can with some assurance decide upon the extent and nature of the help, if any, that was probably rendered. Here is the text in full:—

MONTICELLO, May 9, 17.

DEAR SIR:

Your favor of April 18th was duly received, and the two drawings were delivered by Mr. & Mrs. Madison in perfectly good order. With respect to Carrachi's bust, any artist whom you may dispose to do so shall be welcome to come and make a cast of plaister from it, we have always plaister at hand.

We are commencing here the establishment of a College and instead of building a magnificent house which would exhaust all our funds, we propose to lay off a square of 7. or 800 ft. on the outside of which we shall arrange separate pavilions, one for each professor and his scholars. Each pavilion will have a school room below and

two rooms for the professor above, and between pavilion and pavilion a range of dormitories for the boys, one story high giving to each a room 10 ft. wide and 14 ft. deep. The pavilions about 36 ft. wide in front and 26 ft. in depth.

[Here follows sketch]

"With trees & Grass."

The whole of the pavilions and dormitories to be united by a colonnade in front, of the height of the lower story of the pavilions, under which they may go dry from school to school. The colonnade will be of square brick pilasters (at first) with a Tuscan entablature. Now what we wish is that these pavilions as they will show themselves above the dormitories shall be models of taste and good architecture, and of a variety of appearance, no two alike, so as to serve as specimens for the architectural lectures. Will you set your imagination to work and sketch some designs for us, no matter how loosely with the pen, without the trouble of referring to scale or rule. For we want nothing but the outline of the architecture as the internal must be arranged according to local convenience. A few sketches such as need not take you a moment, will greatly oblige us. The Visitors of the College are President Monroe, Mr. Madison, 3 others whom you do not know and myself. We have to struggle against two important wants, money, and men for professors capable of fulfilling our views. They may come in time for all Europe seems to be breaking up. In the meantime help us to provide snug and handsome lodges for them. I salute you with friendship and respect. THOMAS JEFFERSON.

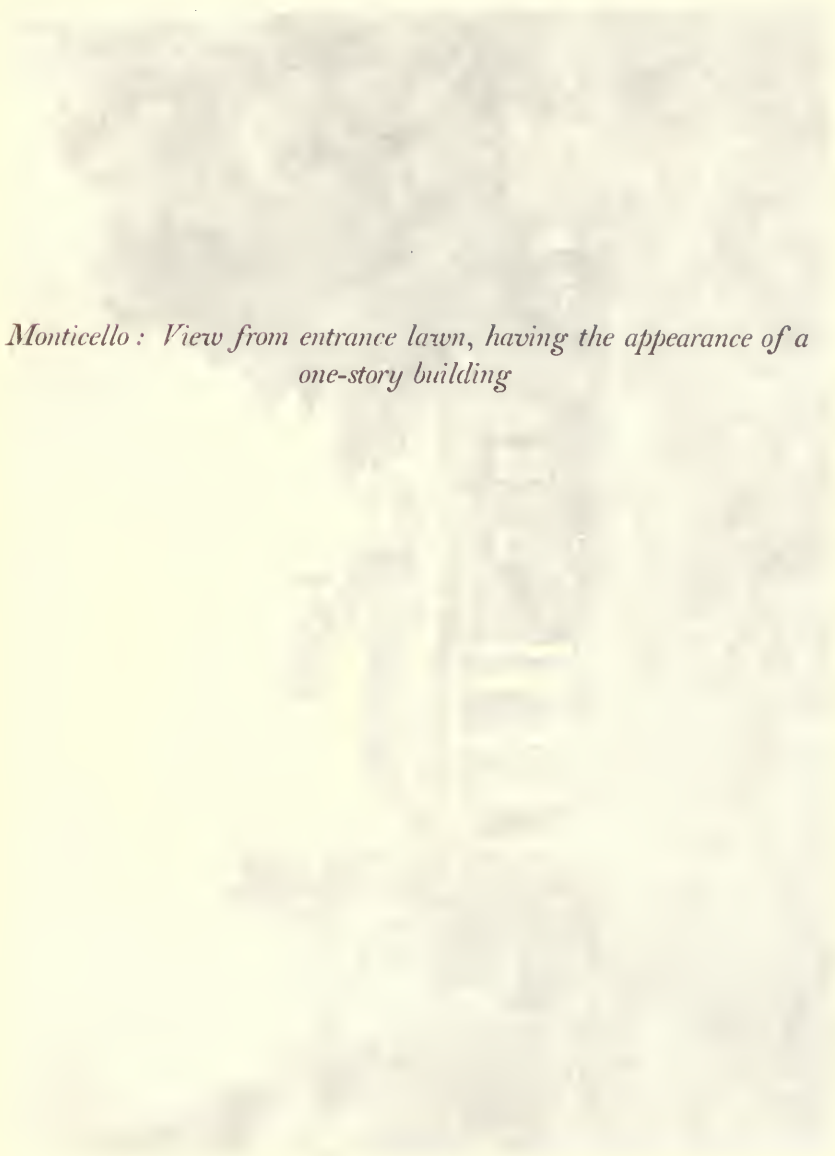
Assuming that Dr. Thornton complied with the request, — and it is hardly to be presumed that he did more than this, for reasons which will appear later, — examination of

the request itself shows that the favor which Jefferson asked is warranted by the request of Thornton to be permitted to make a plaster cast of Carrachi's bust of Jefferson which was then at Monticello.

Dr. Thornton being an architect by profession whose talent was to be had for value received, Mr. Jefferson was hardly the man to ask of him a real professional service without giving *quid pro quo*. There is no doubt after reading the entire letter that Dr. Thornton was made to feel and did feel that Jefferson's request was no greater than his request for permission to make the cast.

The character of the request strengthens this belief, for he says, "Sketch for us some designs, no matter how loosely, with the pen, without the trouble of referring to rule or scale, for we want nothing but the outline"—"A few sketches such as need not take you a moment."

This request carries with it its own limiting qualifications, showing clearly that he only wanted "suggestions" as to the style of the pavilions, which he himself describes in the letter of request. He in no manner indicates that he proposes to employ or to use him as an architect; but, on the contrary, the letter itself negatives any such possibility by specifically limiting him in both the quality and quantity of his suggestions, and the limits are those which would no more than balance the request concerning the bust.



Monticello : View from entrance lawn, having the appearance of a one-story building

The buildings and their grouping as they were actually produced are in accordance with the general scheme which Jefferson describes in the very letter of request; hence, whatever might have been Thornton's suggestions, they did not result in any change of Jefferson's original architectural conceptions. It was, perhaps, one of those requests so commonly made for advice, which is taken only if it harmonizes with one's own ideas. It must be seen, therefore, that if Thornton rendered any assistance of any kind it was of a very general character, pertaining to the style of the pavilions, and if used at all must have been in accordance with Jefferson's plan which he had outlined in the letter of request and according to which the buildings were actually constructed. This same plan, as will develop later, had been adopted by the Board of Visitors four days before the date of Jefferson's letter to Thornton.

As the internal evidence does not warrant the assumption that Jefferson was seeking or intending to use Dr. Thornton as his architect, neither does the external evidence.

There is no mention of Dr. Thornton's name in any of the official papers of the University, its records, its minutes, or its financial reports, yet these records mention names from all classes; his superintendent of construction, his carpenters, his brickmasons, his Italian stonecutters, his tinners, slaters, and painters. The relations existing between the two men

subsequent to May 9, 1817, do not seem to have been of such a character as to permit us to suspect that Jefferson regarded himself as under any serious personal obligation. The following letter from Jefferson to Thornton answering a request of Thornton's for aid in securing a government appointment encourages this belief. Here is the letter in full: —

MONTICELLO, January 19. 1821.

DEAR SIR:

Your letter of the 9th was nineteen days in its passage to me, being received yesterday evening only; and now that I have received it, I wish I could answer it more to your satisfaction. I must explain to you my situation. When I retired from office at Washington, my intimacy with my successor being well known, I became the center of application from all quarters by those who wished appointment, to use my interposition in their favor. I gave into it for a while until I found that I must keep myself forever prostrate and in the posture of a supplicant before the Government, or renounce altogether the office of intercession. I determined on the latter; and the number of applicants obliged me to have a formal letter printed in blank, to which I had only to put the date, signature, and address. I inclose you one of these in proof of the necessity I was under of laying down such a law for myself, and of a rigorous adherence to it. I comfort myself, however, in your case with the unimportance of any interposition. You are so well known to the President and heads of departments that they need nobody's information as to your qualifications and means of service. Where they know the facts they will act on their own judgments, and in your case particularly with every disposition in your favor; and whatever they shall do for you will give no one greater pleasure than myself. I am much indebted

to you for the pamphlet of patents. It is a document which I have often occasion to consult. With my respectful souvenirs to the ladies of your family, I pray you to accept the assurance of my continued esteem and attachment THOMAS. JEFFERSON.

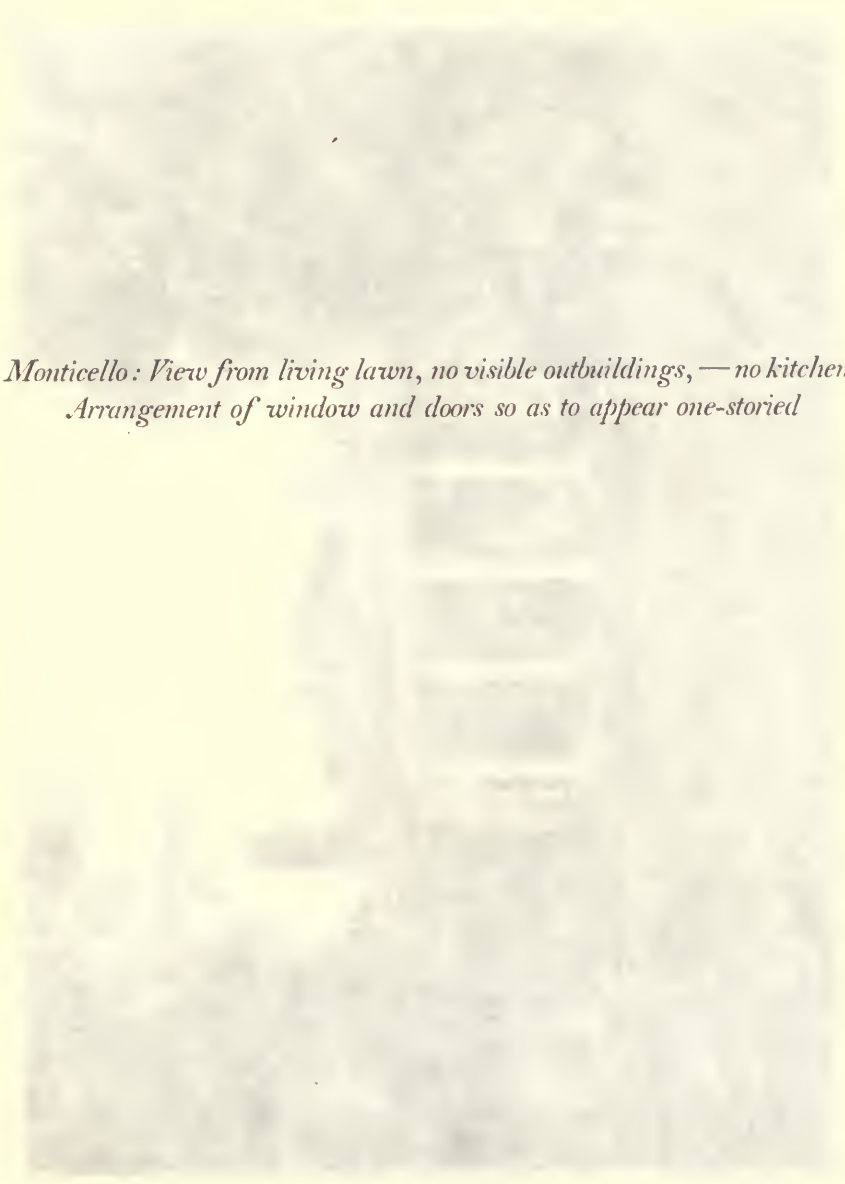
This letter indicates Jefferson's appreciation of Thornton, but it also shows that Jefferson did not acknowledge any personal obligation. It suggests only such relations as might exist between two men conspicuous in public life and not such relation as would have existed if Thornton, without being retained in his professional capacity, had given gratuitously great aid in Jefferson's architectural undertaking.

The external evidence, then, so far as it pertains to the Thornton letter, indicates that Thornton was not retained by Jefferson, since the records do not mention him or show that he received compensation, and Jefferson's refusal personally to aid him in securing public office indicates that he had not rendered Jefferson any very great personal service. At this point it might be worth mentioning that when as President of the United States it became Jefferson's duty to appoint an architect for the Capitol, he did not appoint Thornton, but Latrobe, the latter holding the office until the War of 1812.

The firstborn of Jefferson's architectural children, the most ingenious, and, in many respects the most difficult, was his own home, Monticello. This was begun in 1769 and was essen-

tially fully conceived on that date, for, while it was not completed for thirty-one years (until 1801), the foundation plan was modified during that time in only one important respect, that of projecting as a segment of an octagon the west elevation of the main building into the west portico. A change in the elevation of the main story consisted only of arching over the north and south piazzas around which he returned the cornice of the main building. Examination of the structural work as it exists to-day quickly verifies these conclusions.

The tradition that he constantly changed his plans after traveling abroad is true only in respect to the two features mentioned. Yet this tradition has been given great character by a statement of the Duc de la Rochefoucauld-Liancourt in his classic description of Monticello as he saw it while visiting Mr. Jefferson in 1796. The statement which has been referred to says: "He continues his original plan and even improves on it by giving his building more elevation and extent"; and further on, "— his travels in Europe have supplied him with models; he has appropriated them to his design." This entire letter is well worth repeating, not only because of its splendid description, but in order to show that, after all, the Duke did not mean that the original plan was changed but that the decoration and the detail were constantly evolving during the time of Mr. Jefferson's travels. Here is the letter: —



Monticello: View from living lawn, no visible outbuildings, — no kitchen. Arrangement of window and doors so as to appear one-storied

Jefferson as an Architect

June, 1796.

The house stands on the summit of the mountain, and the taste and arts of Europe have been consulted in the formation of its plan. Mr. Jefferson had commenced its construction before the American Revolution; since that epoch his life has been constantly engaged in public affairs, and he has not been able to complete the execution of the whole extent of the project it seems he had at first conceived. That part of the building which was finished has suffered from the suspension of the work, and Mr. Jefferson, who two years since resumed the habits and leisure of private life, is now employed in repairing the damage occasioned by this interruption, and still more by his absence; he continues his original plan, and even improves on it by giving to his building more elevation and extent. He intends that they shall consist only of one story, crowned with balustrades; and a dome is to be constructed in the centre of the structure. The apartments will be large and convenient; the decoration both outside and inside, simple, yet regular and elegant. Monticello, according to its first plan, was infinitely superior to all other houses in America, in point of taste and convenience; but at that time Mr. Jefferson had studied taste and the fine arts in books only. His travels in Europe have supplied him with models; he has appropriated them to his design; and his new plan, the execution of which is already much advanced, will be accomplished before the end of next year, and then his house will certainly deserve to be ranked with the most pleasant mansion in France and England.

The Duke's prediction of the early completion of Monticello was in error, for in November, just as the walls for the dome were completed and ready for the roof, a blizzard came and the freezing weather arrested the progress for another season.

Jefferson as an Architect

The dream of erecting a house of noble distinction was taking possession of the mind of young Jefferson while he was a student in college, enjoying the pleasures of Virginia's polite society, the guest of Governor Fauquier and the protégé of Small and Wythe. During the vacation of 1762–63, when he was in his twentieth year, after spending his days in study, he would at sunset cross the Rivanna, in his own canoe, from Shadwell to Monticello Mountain, and leave new grades for the laborers who were even then, seven years before he began building, leveling its summit upon which he was to erect his grand edifice. After the fire in 1770 destroyed his birthplace at Shadwell, he moved his mother's family into Monticello, which was far enough advanced to house them comfortably, and in the winter of 1772 it was, although incomplete, ready to receive his bride.

Whence could young Jefferson import an architect? These were days before Thornton, Turner, Latrobe, and Hallet — days in Virginia when such services were not to be found for the seeking nor to be had for the asking. In fact the absence of such talent forced Jefferson to become his own architect, as many other Virginians had been up to that time. But on the completion of his Monticello, he became the arbiter, the critic, and instructor in this art, and his advice and his services were urgently sought by all the prominent planters of the day, as well as by the public, for the

Virginia Capitol Building was in great part his creation. His fame as an architect was not confined to his own state or even country. Monticello was visited by many distinguished foreigners and written of in books of travel in foreign languages, one Frenchman remarking that Jefferson was the first American who had consulted the fine arts to know how he should shelter himself from the weather.

Jefferson's conception was a step forward in the art of home-building. The colonists had crowded about themselves offices and shops for the conduct of a planter's business: weaving, dyeing, distilling, shoemaking, tailoring, blacksmithing, and wagonmaking. Jefferson began by concealing all these handicrafts, removing the symbols which suggested service, veiling the materials of our lower activities, perfecting and minimizing the labor in them, while he prevented their overflow into, and their hard intrusion upon, the spirit of a home. Not only did Monticello do this, but it went farther by obscuring those that performed the labor. Dishwashers and cooks, butlers and maids came quietly through concealed passages; with wood, water, food, and ashes they ascended and descended stairs which had been cunningly tucked away in unobtrusive fashion. The old-time Virginian required for his own living, as well as for the entertainment of his guests, that troops of slaves be moving in all directions with wood for fires, cans for ashes, cold water for drinking, warm water

for bathing, and hot water for shaving. Such was the life lived at "The Grove," at "Brandon," and at "Shirley," where too often the offices to be performed created confusion in the main hall, the seat of the house's soul where quiet dignity should prevail.

The ingenuous ignorance affected by those who assert that Jefferson forgot his stairways would be highly offensive were not its absurdity so great as to make us know that it is meant to be a pleasant little irregularity of speech. Jefferson did not forget to provide stairs; on the contrary, stairways were the subject always of his serious consideration. He looked upon them as a horrible necessity; to his artistic sense they were extremely offensive. His attempt to secure greater architectural dignity than was usual to a home required stateliness, high ceilings, one roof — required that the ceiling should not at once with a vulgar voice tell the tale of its being at the same time the floor of a hall above. The earth itself was degraded in the Greek mind when it conceived that the sky was only the floor of a heaven above where Zeus reigned amidst his court. (See Plate III.)

It has always been the architect's most difficult task to discover opportunity in a dwelling for the successful display of his talent; the requirements for a dwelling are too personal, too narrow, too inflexible, and smack too much of the organic necessities of living, for him to secure dignity

Monticello: Main Hall; stairway hidden, — nothing to suggest chambers above

and at the same time satisfy these requirements. Jefferson successfully conquered these difficulties by making the exterior of Monticello appear to be a one-storied building, and safeguarded this delusion, for, upon entering, no stairway stood sentinel to announce the deception. How well he conceived and executed a piece of residential architecture; how perfectly he adapted it to the spirit of true art and responded to the demands of his time are attested by the fact that for more than half a century after its construction it was the most renowned private residence in America.

Whence came the preparation for such tasks? Jefferson, a twenty-seven-year-old Virginian planter, conceiving a new architecture, or ingeniously adapting classic forms to the unfolding of a new country's demands! Such talent could not have been altogether inherent. We learn that he graduated with a fair reading knowledge of Latin, French, and Greek; that he further improved these accomplishments under the instruction of Wyeth, his law tutor, whom he describes as the best classical scholar in Virginia, and that he mastered mathematics and Italian in private study. So far as evidence exists, these moments of delving into classic literature were the only sources of his architectural inspiration up to the time he built Monticello. This home, which is still the shrine — the mecca — of the tourist-student of American architecture, to have been built by a twenty-seven-year-old

Virginian will throughout time be the source of skeptical researchers in the architecture of the Colonial period. We may expect, therefore, to continue to hear the perennial voice of the doubting Thomas. And yet, whatever doubt exists as to the architectural authorship of the University of Virginia, there seems never to have been any question about Jefferson having been the real and only architect of Monticello.

The genius and versatility required and displayed in the production of a Monticello far surpass those which are demanded of the creator of a temple, a church, or public building, where the adaptations are never "personalized"; and since, when an untraveled Virginia planter with only such preparation as could be gotten from the reading of books, he was able to produce a Monticello, surely no effort of the imagination is required to believe that he, after having been a world-character, a Governor of Virginia, a Minister to France, a traveler in Italy, and twice a President of the United States, could successfully undertake the buildings of the University of Virginia.

Monticello was the only complete piece of domestic architecture by Jefferson, but all of the most pretentious homes in the neighborhood, either in plan or decoration, embodied some of the Jeffersonian principle.

In a large package of Jefferson's drawings, which has come into the University's possession, was found a plan and

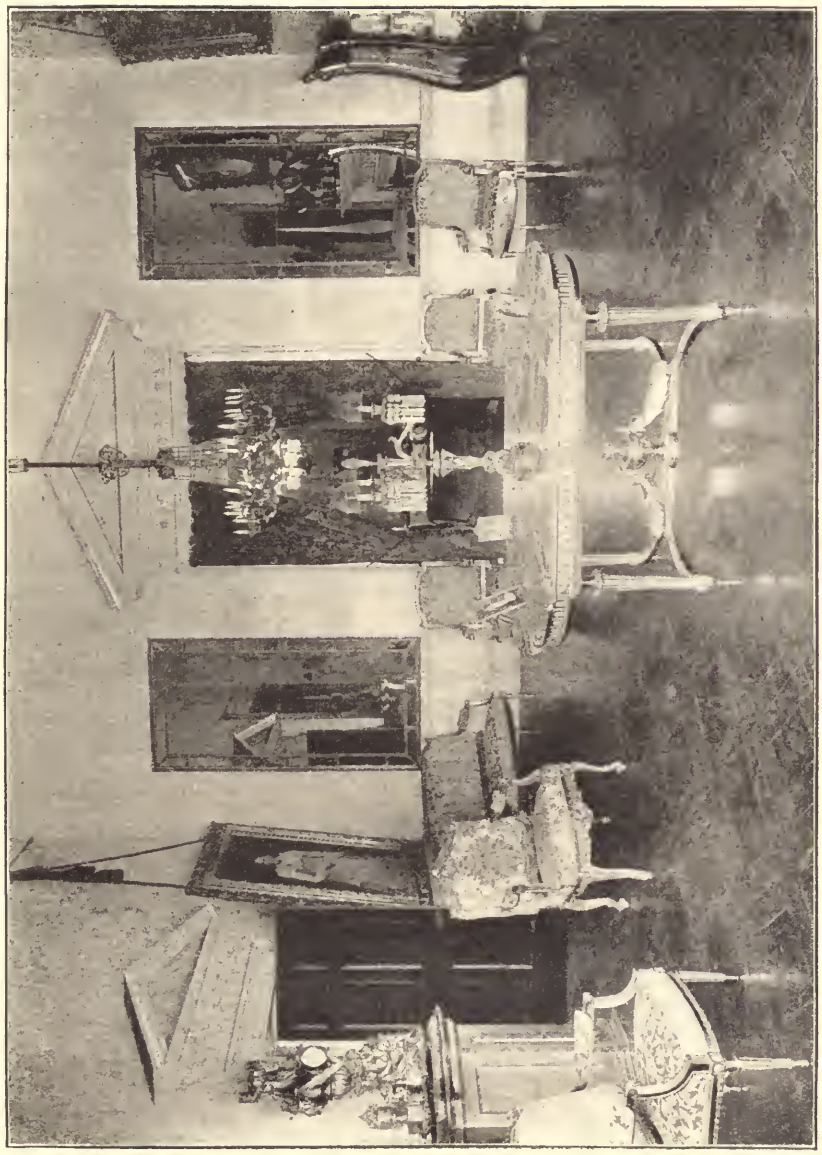
Monticello : One of the hidden stairways

front elevation of a typical Jeffersonian colonial residence. The drawing is undoubtedly Jefferson's, and on the back of it in Jefferson's hand is written "Jno. H. Cocke, Bremo." The plan, while not identically that upon which Bremo was constructed, is unquestionably its inspiration. The building is on a bluff which commands a view of the James River at its foot and a splendid western mountain view. Like Monticello it has two porticoes — one overlooking the fertile river-farm with the river in the background, the other commanding the western hill-view. The building is square, with a hip-roof with balustraded cornice and deck. The river portico is recessed and without approach from the grounds, which were formal and exacting in the foreground, but gradually in grading and planting blended with the pastoral view beyond. The west portico was more pretentious, and entrance was here effected. There were no underground passages from side to side; but, in place of these, there were two means of communication between front and rear and between one side and the other by which servants could perform their offices without appearing on the landscape. The front lawn is semi-circular in plan and bounded by a redoubt, a moat — an open ditch seven feet deep which is crossed directly opposite the portico by a bridge. There is no embankment raised on the margins of the ditch, or "ha-ha."

The front elevation shows two and one quarter stories above the ground, and greater breadth and dignity to this elevation are gained by a parapet wall extending laterally to the two pavilions; a slate roof over the parapet wall projects toward the river from the top of this wall covering the lower walk-way from the mansion to the end pavilions. The walk-way grade is on the basement-floor level so that, if the wall were removed, a pedestrian would scarcely be visible to one standing on the front lawn. In other words, the rear lawn is five feet lower than the front lawn. Owing to this difference in grade the rear elevation shows three full stories instead of two and one quarter, as does the front. The west portico is strikingly Jeffersonian Doric, and if it were not made from the drawing left by Jefferson it was from an exact reproduction of that drawing.

The interior of Bremo does not exactly correspond with Jefferson's drawing, but the changes are too slight to obscure the identity of the architect. There are three features that show the Jefferson influence; the main entrance hall, the cross-halls or passages and the stairways. The entrance hall is the full building-height, from main floor to roof trusses, of pleasing proportions, with a hard-wood floor laid in squares of nine-inch blocks, dark and light wood alternating, without borders. The cornice is a reduced reproduction of that seen in Leoni's edition of Palladio from the

Monticello: Reception Hall connecting with Main Hall, and having also an entrance through the South Portico. Floor of walnut, beech, and wild cherry



Baths of Caracalla, and exactly the same as that used in the first pavilion on West Lawn at the University of Virginia. This cornice came from Palladio, and Jefferson was the only Virginian at that time in possession of Palladio — a copy which he imported after many unsuccessful efforts to get it in America.

The cross-hall, or passages as Jefferson calls them, are essentially like those at Monticello in that they afford communication with the lateral rooms of the building from the sides of the main hall, and continue, with the walk on the roof of the covered way, onward to connect with the main floor of the lateral pavilions, or bachelors' quarters as they were called.

The two stairways — one in the right and one in the left passage — to reach the chambers above are obscurely placed in a well which continues to a skylight in the roof, so that they do not appear in the line of vision when all the doors are opened and a vista is secured from one end pavilion through the main hall, the two cross-passages to the other pavilion two hundred feet away.

The south hall is only one and one half stories high, much smaller, but with a Palladian cornice with soffits paneled between the modillions, and all the members in pleasing proportions.

Aside from evidences here offered confirming the as-

sumption that Jefferson put his imprint upon Bremo, there was a personal relation between these two men extending through many years, ending only with Mr. Jefferson's death. Mr. Cocke was regarded as a disciple of Mr. Jefferson, and was finally associated with the great statesman as a member of the Governing Board of the University of Virginia. During this latter relationship, Cocke used frequently to submit his building plans at Bremo to Mr. Jefferson's criticism and seek aid. Letters are now extant attesting this fact. General Cocke succeeded Jefferson at the University as the practical builder and also as the architect for the community. He followed Mr. Jefferson's plan in training his own slaves as carpenters and stonecutters. (Refer to plan of Bremo, Plate 1.)

During the progress of work at the University of Virginia, Jefferson was aiding his friend, George Divers, in planning a mansion-house at Farmington, three miles west of the University. In this structure the Jeffersonian hand is very apparent. A large octagonal structure, in front of an old-fashioned square house, with circular upper windows, a full-height hall behind a Doric portico with Jefferson's proportions, but certainly lacking in Jeffersonian detail. He embodied here the same principle of hidden passages leading through tunnels below grade, under colonnade and arcades above grade, past the doors of servants' quarters, behind

area walls supported by flying buttresses to the stable three hundred feet away. A subsequent owner has desecrated the main hall and robbed it of its grandeur by putting in a floor just beneath the circular windows in order to make an upper room over the hall. Fortunately this splendid old estate is now in the possession of those having a reverence for history and a love of art, and we may hope to see the hall restored.

Monticello, Bremo, and Farmington are typical examples of Jefferson's ideals in domestic architecture and the University of Virginia illustrates his powers in relation to public buildings of a monumental character. It is certain that George Washington and his commissioners consulted Jefferson on the plans of the White House and the Capitol Building — that his knowledge and tastes were influential in the making of Virginia's State House. But it was in the University buildings that Jefferson's own mind ran free, untrammelled, and unrestrained in the field of monument.

The plan of the University did not, full panoplied, leap forth from the brain of Jefferson, but was an evolution out of the meditations of an intellect made fertile by a long life crowded with accurate observations and exceptional experiences.

By examination of the records, which are both verbal and graphic, it is possible to trace the growth and maturation of his architectural composition. As early as 1817, he had fixed

certain fundamental principles from which he never deviated. (1) That the creation was not to be a single grand edifice, but was to consist of distinct yet blended, separate yet united, independent yet affiliated units; that it should be an architectural democracy. (2) That these units, despite the use of modest materials which the extent of his funds might prescribe, should in their lines and in their proportions conform with the laws of art. In this he was not flattering a vanity: he was complying with what he recognized as an obligation; for, as he explained to Madison, he conceived it a duty resting upon those responsible for the construction of public buildings, that they be so designed as to furnish models both for study and for imitation, in order that the public taste might be educated. (3) That in the arrangement of this artistic democracy — this academic village — there should be a central "square," an open court, a commons for both teacher and taught, professor, proctor, and student, who, having discarded their robes of rank in the environing pavilion and dormitory, as mere men might mingle here together. Never swerving from these principles, but, with irresistible energy, struggling against the indisposition of his time to provide for higher education, he labored relentlessly.

His first draft of a lay-out which he presented to the Trustees May 5, 1817, on which day Albemarle Academy

Farmington : Jefferson's portico and octagonal addition to the front of an old square Virginia farm dwelling

became Central College, was the same lay-out which five days later he sent to Thornton. It provided for nine two-storied pavilions or separate schools, arranged three on each of three sides of an open square, all connected by a range of single-story dormitories. The dormitories were each designed for two students. The main floor of each pavilion was to be used as the lecture-room and workshop, while the chambers above were for the use of the family of the professor in charge of that school. (See Plates IV, V.) The width of the square was 771 feet, but since the fourth boundary was undefined the space permitted of being indefinitely extended as a parallelogram. Each pavilion was provided with a garden in the rear. So far he had not even acknowledged the expediency of a structure to house functions common to, yet different from, those of all the schools. The time had not yet come when a mind of Jefferson's democratic temper could accept the necessity for a central edifice without coquetting with centralization and endangering the independence of the schools. To him the states were sovereign still, despite the fact that he had already presided over a United States. (See Plate IV.)

The study of the plans, with their notations, corrections, and amendments all in his own hand, makes it possible not only to read their growth, but the very order of their growth. The original plan which he presented and which was adopted

by the Trustees was greatly modified within six months, and by the time the basement walls of his first building had reached the main-floor level, he was ready with his amended plan. A distinctive feature of his original plan was the provision for a side entrance to each pavilion, in order that the professor's household might reach their apartments above without being required to pass through the front or lecture-room. This feature was further emphasized in the more detailed plan drawn on a larger scale for the use of the builders. (See Plate v.)

Moreover, examination of this building as it stands to-day verifies the fact that it was actually proceeded with upon this plan until it had risen to the principal floor level. The rear wall of the adjoining dormitory on the north still bears the remains of the junction of the area wall of the side passage-way, and, further, the main north foundation wall extends twenty-four feet farther backward than the south wall which corresponds with the area wall plan. These facts enable us to locate the change in point of construction, and, by the fortunate preservation of a letter from Jefferson to Samuel Harrison, we are enabled to locate the change in point of time: —

Octo. 5th 1817

Mr. Sam'l Harrison, Dear Sir:

We have got one building up to the surface of the ground; and tomorrow being the periodical meeting of the Visitors and also

that of our county and district courts, the ceremony of laying the 1st stone will take place. . . .

THOS. JEFFERSON.

During the two months that his builders were getting the pavilion up to the surface of the ground, Jefferson must have been busy with the extension of his plans as well as with modifications of his old ones, for at the meeting of the Visitors held the next day after laying the corner-stone, he presented his plans for two other pavilions with their attached dormitories. The two now proposed were far more pretentious than the one under construction, and no doubt the Visitors regarded them as needlessly extravagant and beyond the local builders' craftsmanship. But the Sage had anticipated this at a previous meeting held at Mr. Madison's home in Orange, July 28, and had then caused to be passed the following resolution: —

It is further agreed that it be expedient to import a stonecutter from Italy and that Mr. Jefferson be authorized and requested to take the requisite measure to effect that object.

The first University building, which was now under way was one of Palladio's lighter Dorics, which Jefferson felt could be successfully undertaken by the local artisans, but the two proposed at this meeting — one a Corinthian and one an Ionic — were of the heavier Roman type; he, therefore, felt that he would be on safer ground in possessing talent better trained.

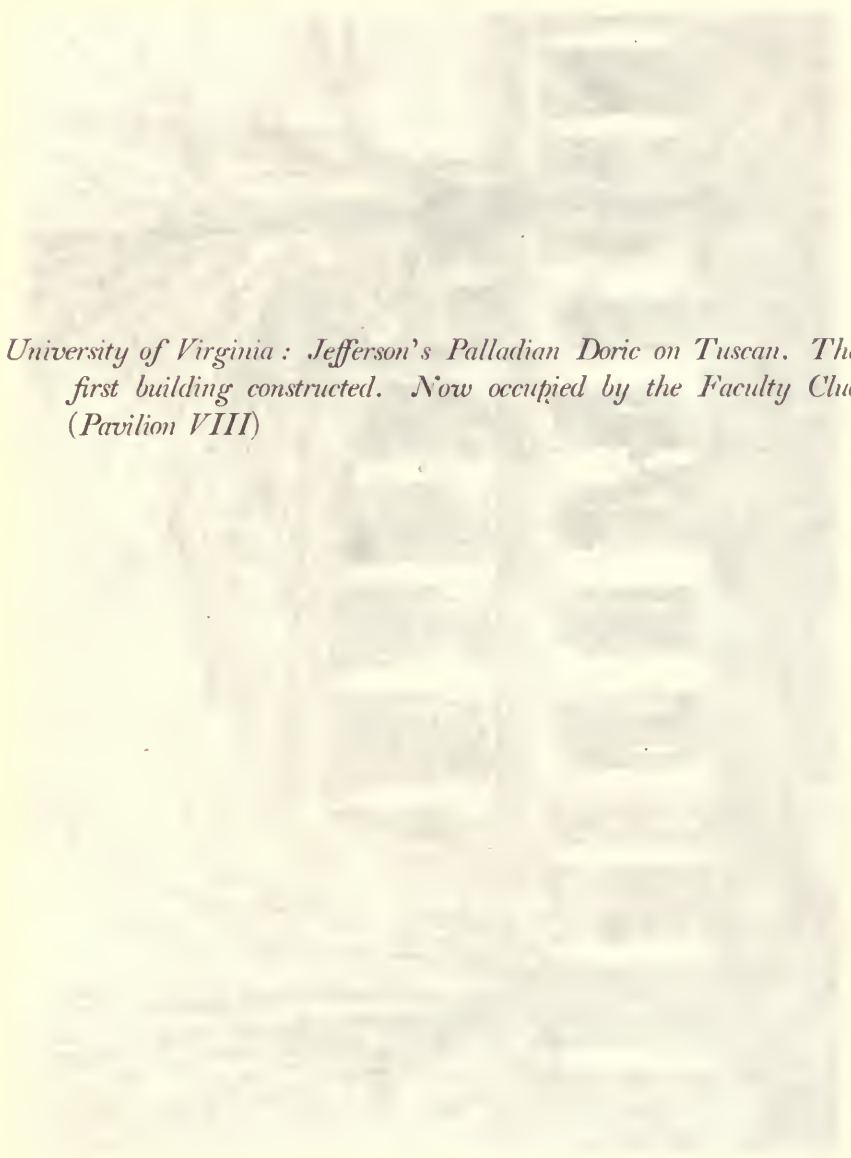
It was an ambition of Jefferson also to construct his University out of native materials. It cost him $1390 to demonstrate the unfitness of native stone, a mica schist, to be wrought into ornamental parts; he reports to the Literary Fund as follows: —

> On trial the stone we had counted on in the neighborhood of the University was found totally unsusceptible of delicate work; and some from a very distant but nearest other quarry known, besides a heavy expense attending its transportation, was extremely tedious to work and believed not proof against the influences of the weather. We arrested the work here, therefore, and compromised with the artist at the expense of his past wages, his board and passage hither, amounting to $1390.86. (See Plate VII.)

These capitals which he endeavored to have cut from native stone are now, in various stages of completion, standing in the gardens of East Range.

His attempt to use local slate was more successful, for he covered his pavilions and hotels with a product that he had searched out. Here is his letter on this subject to Captain Peyton, of Richmond: —

> MONTICELLO, June 12, 18
>
> DEAR SIR:
>
> You know we are engaged in the establishment of a Central College near Charlottesville and we are sure you will have your children educated at it. On that ground we claim a right to give you occasional trouble with its concerns. We wish to cover our buildings with slate and we believe all our lands on Henderson's and B.



University of Virginia : Jefferson's Palladian Doric on Tuscan. The first building constructed. Now occupied by the Faculty Club (Pavilion VIII)

island creeks to be full of what is excellent. We wish, therefore, to get a workman, a slater, to come and examine it and if found good, to undertake our work. There is a Mr. Jones, a Welshman who did some excellent work in Charlottesville, and who is supposed to be now in Richmond. If you can prevail on him to come, we would prefer him because we know him. If not to be had, then we request you to search out some other good slater and send him on to us, to examine our quarries and say whether the slate is good. I inclose a specimen of our slate from which he may form some judgment of the probability of finding what will answer.

THOS. JEFFERSON.

On the date of the adoption of the plans for the "two other pavilions" the lawn had not been contracted, for the resolution says "each pavilion with its *twenty dormitories*"; but before the second building was laid off in the spring of 1818 he had reduced the lawn to its present size, for this second building and all subsequent ones were laid out with ten or less dormitories instead of twenty. Here, then, in the spring of 1818 occurred his *second* serious modification.

These two buildings, making three in all, were well advanced when on January 25, 1819, the act passed the legislature converting Central College into the University of Virginia. The first meeting of the Board of Visitors of the new institution, held March 29, 1819, found Jefferson ready with plans for two other pavilions and one hotel. It was the location of this hotel which brought about the *third* change of plan.

He had already constructed four buildings on West Lawn, and, in order to locate the first hotel (which was not located until April 3, 1820), he was forced to decide whether or not he should align it with his buildings for instruction or whether he should establish a new order. He decided on the latter, and on this date (April 3) we find the first record of a Western Back Street (now West Range) upon which he located Hotel "A," the building now used as a physiological laboratory. This was more in the nature of growth than change of plan, for in the beginning his scheme only comprehended feeding the mind; now, however, he must attend to the wants of the body. (See Plates VIII, IX.)

This enlargement of plan from ten to sixteen buildings, and from two to four parallel ranges of buildings gives him an opportunity to revert to his original size of space, so that the entire system of buildings from outside range to outside range measures seven hundred and seventy-one feet, exactly that which appears on his first draft. This could not have been an accident, for, as will be observed, his superintendent wanted to change this in order to avoid a deep excavation at hotel "A." Since he was not permitted to make this change, we can conclude that it is a matter upon which Jefferson was insistent.

Having decided upon two double ranges of buildings, he proceeded to draft his enlarged plan. His first new lay-out

shows that he intended to have his two outer ranges also face toward his commons or lawn, for the plan is still in existence showing by dotted lines how he proposed to treat the rears of the buildings already constructed in order to prevent one row of buildings from looking into the back yards of another. (See Plates VIII, IX.) Finding, however, that the legislature, the source of his funds, was more interested in getting new buildings erected than in remodelling old ones, he regarded it as expedient to reverse his plans for the Western Back Street Range and face them away from the Lawn Range. Not possessing the luxury of a drafting department at Monticello, he resorted to the ingenious expediency of cutting out with a penknife the part to be changed and replacing it in the same drawing with a piece containing the revision. It is due to this fact that we are enabled to trace his order of change, for the original plan with the original dissected piece and the new piece supplied are still preserved. (See Plates VIII, IX.)

This change of plan in point of construction is certain to have been just at the completion of the first four pavilions on the West Lawn, and it is located in time by a minute of the Board April 3, 1820, as follows: —

> *Resolved*, that [certain funds] be applied to the erection of buildings of accommodation on the Western Back Street.

Although he does not seem to have announced it, this drawing which he presented to the Board had upon it the plan of the rotunda. It was, however, standing isolated in the middle of the north end of the commons or lawn. And at that time he clearly intended it to be so, for, in giving distances of the various buildings from this point, he says, "from a line drawn *across the lawn* through the middle of the library," indicating that there was a lawn on each *side* of the rotunda across which a line drawn through its middle must pass. The first official mention of the library was in such words as to leave no doubt but that the Board were already cognizant of the progress of the plan: —

> *Resolved*, that it is expedient to proceed with the building of the library on the plan submitted to the Board, provided the funds of the University be adequate to the completion of the buildings already begun (April 2, 1821).

On October 7, 1822, Jefferson's annual report states that "ten pavilions with their gardens, six hotels, and 109 dormitories are completed except for some garden walls, a little plaistering, some of the capitals and part of the grounds."

On December 23, 1822, he first mentions the rotunda terraces. He says: —

> An estimate made by the Proctor at an early period supposed that the last building called for by the report of 1818 and not yet executed

University of Virginia : Rotunda as it stands to-day, North view

would cost $46,847.00, but this did not include two considerable appendages necessary to connect it with the other buildings.

On October 6, 1823, Jefferson tells us that the walls of the rotunda are ready for the roof, and that the missing capitals are now in place, that the garden walls are finished, that the plastering in the pavilions is completed, and that the lawn is graded. One year later, October 5, 1824, the roof is on the rotunda!

From February to October, 1819, must have been a busy time, for although Jefferson was in his seventy-seventh year he had in those eight months drawn the plans and written the specifications for five pavilions and five hotels; this task out of the way, he during the next year (April 2, 1821) submitted his completed plans for the rotunda. With the completion of this building his unified composition was rounded out, and while he did later furnish plans for an observatory and an anatomical theatre, they were not undertaken until after his death and then only partially executed.

Monticello, while overlooking the University, is on a mountain four miles away, and, although Mr. Jefferson was a frequent visitor, he did not come down every day, so that a running correspondence between himself and his superintendent of construction took the place of many personal interviews. A few scraps of this correspondence have been preserved.

Here is a note in full:—

University of Virginia, May 1st, 1820.

Dear Sir:

I have procured you a pint of oil of our painters. If you have any of the other plans of the Hotels drawn you will oblige by sending them as it is important that the timber should be cut for them as soon as possible. Hotel A on account of the flat roof being so large, will be difficult. For that reason I believe I shall give it to Oldham. The others being smaller and consequently less difficult in the management of the roof I intend for Spooner & Perry. Hotel A if placed in a line with the north flank wall of Pav. No. 1 will have no dormitory attached to it as there is only 56 ft. from the north flank to the alley or cross street running up to the back of the dormitories. I wish to see you also before we begin the foundations of the hotels, as I find if we cut in the bank the depth of Hotel A we shall have a bank 7 feet high and then the cellar to dig out; in order to save some labor I propose advancing the buildings a few feet in the street and then throwing the street more to the East.

I am Sir your obt Ser.

A. S. Brockenbrough.

To whom but the architect could this letter have been written? Every architect is receiving just such letters to-day. The problems he mentions are just the ones that every superintendent is confronted with and the answers to them are just such as only the architect is authorized to give.

A wealth of original plans, elevations, and specifications existing, some may ask what has become of the detail drawings? Detail drawings are for the use of builders. Jefferson

probably furnished few full-size details; and, if he did, they were destroyed then, as they are now, by the rough handling of the artisans. There are, however, some of these preserved: One of his Chinese balustrade (see Plate x), one of a Doric cap for Pavilion IV, and one for the architrave of the dining-hall in Hotel A. There is also a three-quarter scale drawing of his column for the Tuscan colonnade.

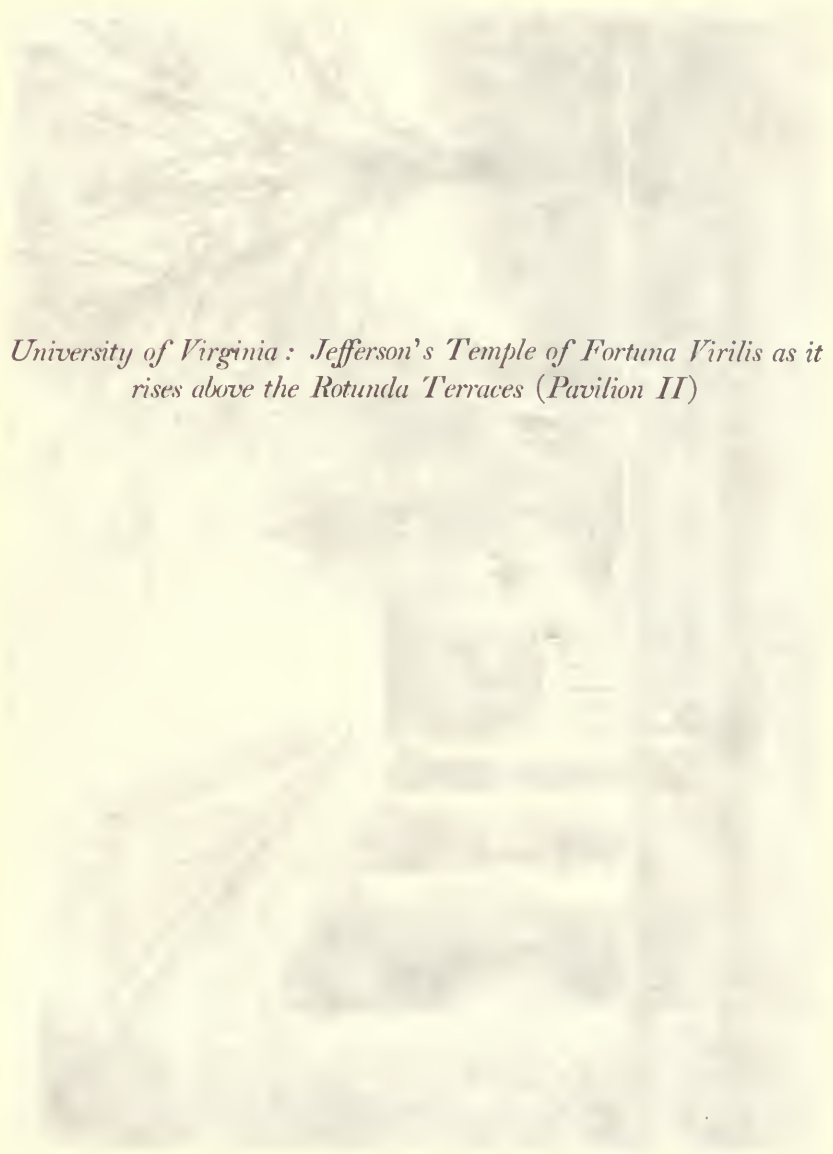
Regardless of any aid Dr. Thornton or any other furnished, the real source of his rotunda and pavilions was Palladio. There is no difficulty in determining this fact by an examination of the buildings and comparing them with those represented by Palladio, but besides this, we have Jefferson's constant acknowledgment of this authority. His correspondence during the constructive period makes repeated reference to Palladio, or to his editors, Chambray and Leoni, in order to convey to his workmen his ideas without needless drawing. Here is a photograph of his specifications for capitals for four pavilions. (See Plates xi, xii, xiii.)

That Jefferson turned to Palladio was the natural result of his experience. He had seen the work of the few architects then working in America. He was familiar with their limitations, their untrained, inefficient, jealous, and quarrelsome dispositions. He knew personally Hallet, Hoban, Turner, Thornton, and Latrobe.

Palladio was his only source of accurate information con-

cerning Roman classical architecture, and, while Palladio may have been undiscriminating enough to have admired most the Colosseum and the Triumphal Arches, the so-called degenerate forms of Rome's Antiquities, he nevertheless recorded and made accessible the plans and exact measurements of her purer forms as found in the Temple of Fortuna Virilis and the Pantheon.

Palladio had been the inspiration of Inigo Jones, who began an architecture which latter culminated in the so-called Georgian, a type which, although represented by some splendid monuments, is nevertheless the outgrowth of the worst that was in Palladio, a type characterized by order supporting order, clustering of columns, multiplication of pilasters crowned with broken entablatures, and frequently indulging inelegant, if not vulgar, ornament. The Georgian architecture of England was rooted in the depraved forms of Palladio — it was a leaning toward the Vitruvian, and while Jefferson also found his starting-point in Palladio, his development was in precisely the opposite direction. He refused to be led away from such types as the Pantheon, but used Palladio to work back into them; hence, while every type created by the Georgians became increasingly mongrel and depraved, every form by Jefferson became increasingly refined and classical. Jefferson rarely indulges a pilaster, only once superimposed an order, and never broke an entablature. The only excuse for care-



University of Virginia : Jefferson's Temple of Fortuna Virilis as it rises above the Rotunda Terraces (Pavilion II)

lessly designating Jefferson's work as Georgian is found in the accident that during its construction a George was on the throne of England. Vitruvius describes the Roman architecture as it was under the Cæsars, including its beauties and its blemishes, its purity and its degradation. Palladio, while he saw these through the eyes of Vitruvius, did not use Vitruvius's discriminating brain. Inigo Jones, the "English Palladio," saw and comprehended only as Palladio did, while Jefferson, on the other hand, used Palladio's eyes, but his own powerful discrimination. To this is due, perhaps, the fact that the ponderous and sometimes impressive piles of the Georgian period fail to produce in the beholder that reverential satisfaction which Jefferson's simpler and purer work has invariably inspired. Jefferson's monumental architecture should have resulted in the organization and definition of those wandering and diffusive types which have characterized American architecture. The principles which are equally binding upon the designer, no matter what the style in which he chose to express himself, would have been more clearly understood. We should then have been spared offensive anachronism, ineffective contrasts, harmonies which do not harmonize, conformity non-conforming. Jefferson dug deeply and removed from the classic forms of the Cæsars the architectural rubbish of the centuries. It is, then, hardly to be presumed that he could have been greatly aided by his contemporaries,

all of whom were developing either in the opposite direction or on a different line. All others were Georgian, Italo-Vitruvian, Gothic, or Renaissance; Jefferson was Roman Classical.

His method in design can be traced in his plans for the library, which as he has decided shall be a reduced Pantheon after Palladio. He says: —

> The diameter to be 77 feet being 1/2 that of the Pantheon consequently 1/4 its area and 1/8 its volume. The circumference is 242 feet. (See Plate XIV.)

To adjust itself to his general composition he has decided that he wants his columns to have a basal diameter of three feet. This being his module, one minute of the module is equal to one-sixtieth of thirty-six inches or six-tenths of an inch. With this lesser unit of measure he proceeds to devise all the proportions demanded in his reductions: —

			Module	Min		Ft.	In.
Entire height of order	Column	1. Height of base of col.	= 0	30	=	1 –	6
		2. " " shaft	= 7	50	=	23 –	6
		3. " " capital	= 1	10	=	3 –	6
	Entablature	4. " " architrave	= 0	38	=	1 –	10.8
		5. " " frieze	=	28.5	=	1 –	5.1
		6. " " cornice	=	45.5	=	2 –	3.3
Total height of order						34 –	1.2

The reduced diameter of the column is to be 54′ (minutes), making the top of the shaft two feet, eight and four-tenths inches.

In the same manner he derives the breadth of his portico, which is to be sixteen modules or forty-eight feet.

	Ft.	In.
1. Intercollonations, 2 diameters	= 6	–
2. Projection of Cornice 47¾ min	= 2	– 4.65
3. Pediment span	= 52	– 5.75
4. Pediment height	= 11	– 8.

Here, then, in his own words, we have his method of deriving his proportions in transverse and vertical lines. Right or wrong, he concluded that these are correct for an entrance to his principal building.

Now out of this space, as a master of design he sets about, first, to secure to his major purpose its requisite share, without omitting to provide in a most economical manner for his minor demands. The upper two-thirds with its vaulted dome he devotes to his library, the lower one-third he utilizes in two floors, each containing two elliptical rooms with ample passsage- and entrance-ways. For the use of his builders he gives transverse and vertical sections of the rotunda, just as he did for the portico. Hence, we must conclude that Jefferson possessed ability as a designer. (See Plates xv, xvi, xvii.)

The second requisite of an architect is his ability to construct. What did Jefferson know of the properties of materials, of the methods of combining them? What practical experience had he? Did he conform to the laws of scientific

theory? Did he correctly estimate the cost of material and labor?

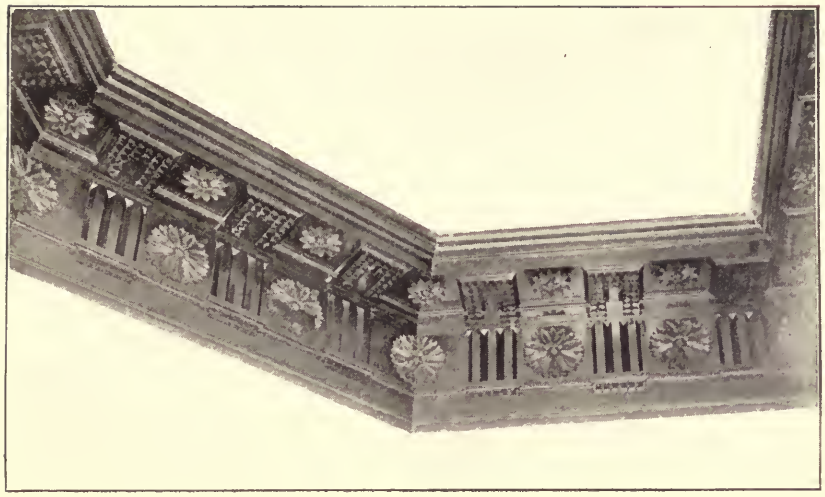
All these questions can be answered in the affirmative by examination of the same building. The roof of this building was a sufficient test of his practical ability in construction. This is the manner in which he accomplished his task. He first drew the plan of the roof giving the plates and ribs; the primary ribs extending from plate to crown, the secondary, three-quarters the way from plate to crown heading in on a secondary crown, the third running one-half way, and the fourth set running one-quarter way. Here are his own drawings and specifications. He says: —

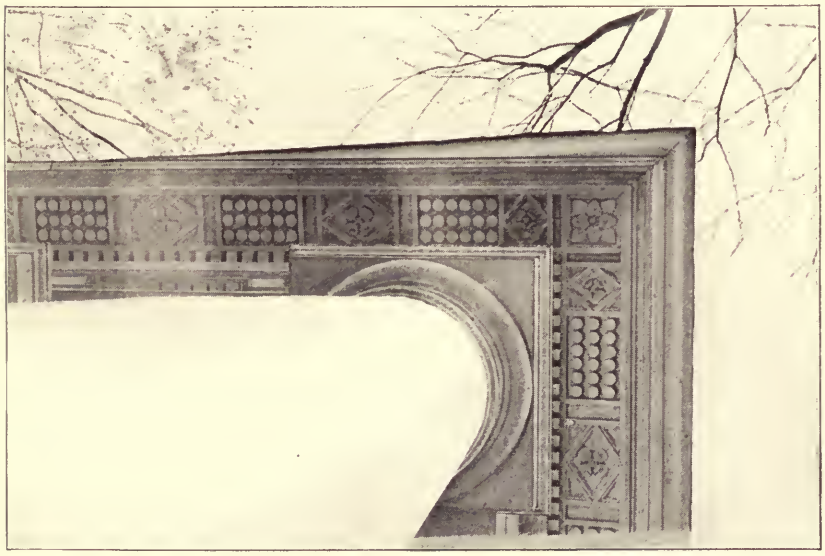
> The thickness of the wall at top, to wit, at the spring of the vault of the roof is 22. in. On the top of the wall lay a curbed plate, in Delorm's manner, consisting of 4 thicknesses of 3.in. each, 22. in wide pieces 12 ft. long, breaking joints every 3 ft. bolted through with bolts of iron, having a nut and screw at their ends. On this curbed plate the ribs of the roof are to rest. The ribs are to be 4 in. thicknesses of one inch plank in pieces 4 ft. long, breaking joints at every foot. They are to be 18 in. wide, which leaves 4 in. of the plate for the attic upright to rest on. The ribs are to be keyed together by cross boards at proper intervals for the ribs to head in as they shorten. The curb of the sky light to be made also in Delorm's way but vertically. (See Plate XVII.)

Here is found illustrated a knowledge and a practical application of his ability in construction: a peculiar roof

Monticello: One of the cornices, constructed of wood, metal, and composition

University of Virginia: Detail of cornice soffit in Jefferson's Theatre of Marcellus. The guttæ are truncated wooden cones and the foliated ornaments of beaten lead (Pavilion X)





problem, which up to that time had not been solved with similar materials in America. His knowledge of the properties of materials was gained by a long life of very intelligent observation and very practical experience, to which he added scientific experiment. He exposed chestnut and hard pine to the weather in horizontal, vertical, and inclined positions for many years in order to measure their comparative durability. He personally examined brick construction in Lynchburg, Bedford, and elsewhere, and contrasted it with that of his own county, some of which he called barbarous. He directed that his brick walls should be laid throughout with alternate header and stretcher, not more than two bats to be used with every twelve brick, and that the joints should be solidly and evenly jointed throughout (not only on the surface). That mortar must be made of *one* third sand and *two* thirds lime.

His training in the management of mechanics, of laborers, and in the manufacture of building materials fitted him to calculate successfully the cost of construction. Further he had at hand Latrobe's estimate of the cost of Philadelphia building. On the back of each plan he enumerates the number of brick in each part of the building designed, even to the number in each column. From the number of brick he arrives at the total cost of construction, as is seen in the following example: —

	Ft.		Height	Brick per ft.	Circumference	Brick
Foundation	3 – 0	3½ bricks thick	3	× 42 ×	242 =	30,492
Basement	7 – 6	3	7½	× 36 ×	242 =	65,340
Lower rooms	17 –	2½	17	× 30 ×	242 =	123,420
To spring of arch	18 – 4½	2	18.4½	× 24 ×	242 =	106,608
To top of wall	12 – 6	1½	12–6	× 18 ×	242 =	54,450
The whole circular external wall						380,310
Front and back buttresses 141 F area each						263,275
2 massive chimneys serving as buttresses						44,800
3 semi-elliptical partitions 2 bricks thick						108,450
Shafts of 12 columns 3 Ft. × 23 Ft.						796,835
						315,840
						1,112,675

He says in Philadelphia they calculate roughly that: (1) The cost of brick walls as equal to the cost of carpenters' work. (2) The cost of carpenters' materials and ironmongery as equal to the cost of brick walls. He points out that this is more expensive than in Virginia at that time. These calculations are copied from specifications written by his own hand. There can be no question, then, as to his being qualified to estimate the cost.

There remains the third test to be applied before conclusion can be reached upon his architectural ability. It has been shown that he understood and appreciated the art of design and that he possessed the ability to construct. What ability did he have to decorate? What were his artistic powers?

If it was assumed that the University group was his creation, no further answer would be required — they stand as an incontestable proof of some one's appreciative and highly developed artistic power. Such reverence for tradition, and such complete allegiance to the canons of good taste he has manifested in the detail of his ornament for the various units of his group and the various architectural members of his units, that no critic has yet pointed out a discordant note in the harmony of his theme. Always a *motif*, but never so often occurring as to appear monotonous nor so infrequent as to lose the air of continuity.

While he continuously had by him Palladio with his best types, he is never afraid to depart from the laws that authority works out; yet, when he has once departed, the end justifies the means. An example of one of his departures is preserved in his own words. What he says in his specifications for attic pilasters in his Theatre of Marcellus is highly interesting; he says: —

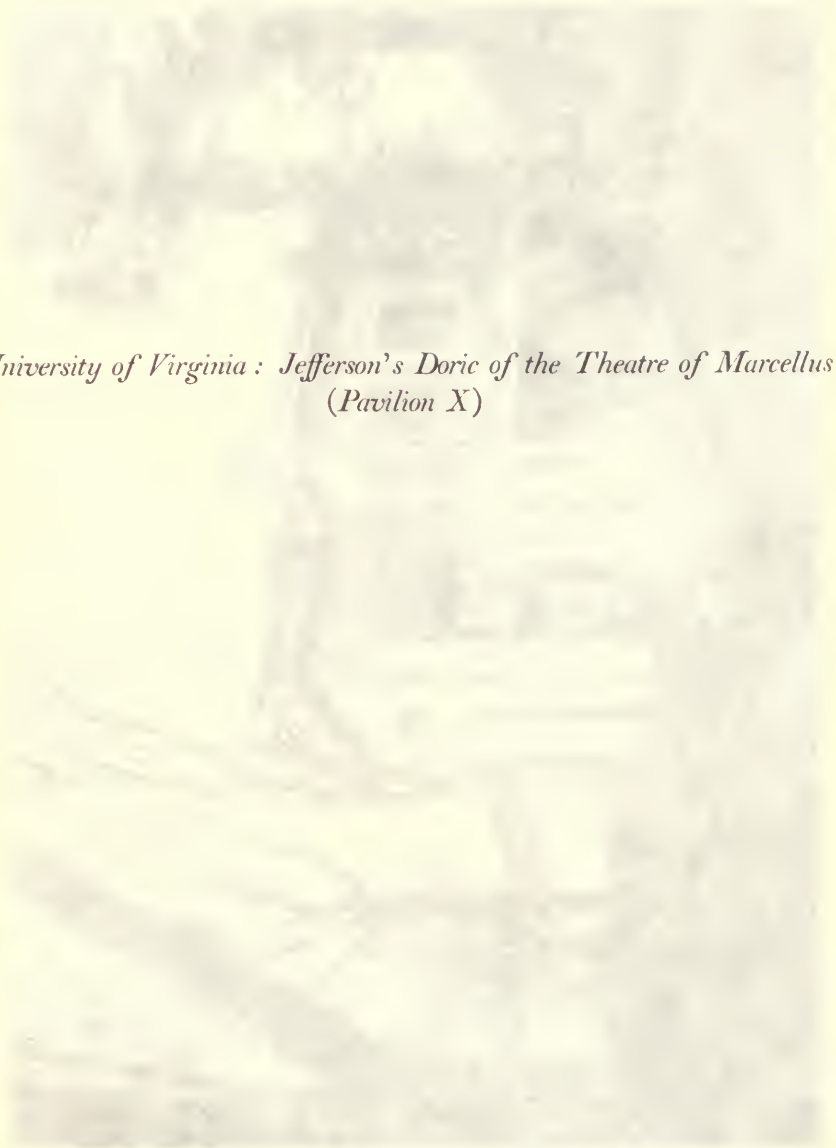
> I have never seen an attic pilaster, with the measures of its parts minutely expressed except that of the Temple of Nerva Trajan. That temple is so overloaded with ornament, and its pilaster frittered away so minutely in its mouldings as to lose all effect. I have simplified these mouldings to suit our plainer style, still, however, retaining nearly their general outlines and proportions. (See Plate XVIII.)

This is not the voice of one who dares not walk alone,

but that of one who, when once having weighed the matter, respectfully gives his reasons, to be sure, but acts.

Another example of his independent artistic judgment is seen in his Tuscan arcade, which, almost with effrontery, pursues its way along the boundaries of the lawn, leaping upward or diving downward, daringly raps at the doors of each of the three orders of his classic temples. An architectural unit in itself surmounted by an anachronistic Chinese balustrade, what more incongruous in thought? Yet what more satisfying in beholding? This is not the work of a mere copyist, but of one having within him a feeling of confidence.

Jefferson's distance compensation in the perspective of his *ensemble* was equally as ingenious and effective as was that of the Greeks who curved the lines of their temple eaves. Standing in the south rotunda portico, looking down the lawn each unit, while maintaining its relationship, is nevertheless possessed of its individuality. He secured this by geometrically varying the diverging lines in two directions — horizontal and vertical. Pavilions I and III and II and IV are spaced 89 feet, 8½ inches on centres; III and V and IV and VI are spaced 126 feet, 4½ inches on centres; V and VII and VI and VIII are spaced 143 feet, 6 inches on centres, and VII and IX and VIII and X are spaced 157 feet, 1 inch on centres. Thus he succeeds in holding apart



University of Virginia : Jefferson's Doric of the Theatre of Marcellus
(Pavilion X)

the visual lines as they tend to approach each other with increasing distance in a horizontal plane. While between Pavilions V and VII and VI and VIII there is a fall of 3 feet, 2 inches, and between Pavilions VII and IX and VIII and X the fall is 4 feet, 6 inches, increasing the drop with increasing distance overcoming the tendency of vertical visual lines to approach each other. In this manner he secured for a group of buildings the same pleasing deception that the Greeks provided in a single temple with convex or concave eaves or stylobate in plan and elevation. A section of the lawn cannot be resolved into an inclined plane nor the elevation of its units reduced to an equally spaced grouping.

Vitruvius, and Palladio after him, had endeavored to discover some mathematical principle or exact expression for the classic proportions manifest in the various orders. Columnar proportions, for example, were laid down as eight, nine, and nine and one-half diameters for Doric, Ionic, and Corinthian respectively. In like manner proportions were established for entablatures and inter-columniations. Palladio's effort was a successful revolt against the license then rampant in European architecture, but being founded only in a half-truth it inevitably led to errors in an opposite direction. The proportions of the human figure when enlarged into the lengths and girths of a giant serve only to magnify

the errors and obscure its harmonies. Painters have less often made this mistake. Michael Angelo's David suffers from mathematical enlargement, although its proportions are mathematically correct, whereas the scale of his painted figures has escaped criticism. As the treatment of St. Peter's held to arbitrary rules of proportion instead of multiplying its detail to give grandeur, the units were proportionately enlarged and extended, thus forcing upon the composition such monstrous treatment as is seen even in the vulgar and exaggerated scale of its Cupids, which, like great masses of putty, have been slammed against the bases of its columns. The result has dwarfed rather than glorified the scale of the composition. St. Paul's, while more successful, endeavored to escape this fault by the superposition one upon the other of its Corinthian orders. Jefferson, as an architect, discovered that beauty and dignity in art refused to be forced into arbitrary and inflexible moulds; that it demanded ease and freedom of movement; that while it had a measurable body, its spirit is not measurable by rule or square.

Vitruvius and Palladio failed to discover a mathematical rule because none existed. The better Roman architects must have worked out for each composition their proportions in design, modelling in plan and in elevation until their critical eye could discover no offense and until their artistic spirit found peace and satisfaction. It was then, and not until then,

that any place was found for measuring and for mathematical proportion. The Temple of Vesta and the columns of Jupiter Stator are the two preëminent and faultless examples of the Corinthian order, yet neither of them conforms with Vitruvius's dicta and neither has a single proportion in common with the other. Were there a mathematical principle, architecture would be nothing more than mimicry and the disciple only a copyist. There would be no place for genius and the calling would cease to be an art.

Some laws there were (and are, to be sure) which bound the Roman architect, laws with a penalty more unescapable than any mathematical laws enunciated by Vitruvius, Palladio, or any archæological student. They were laws of art and not of mathematics. Therefore while Jefferson drew his types from Palladio, he did not copy him, as is seen in a few of his buildings: —

	Diameters	
	Palladio and Vitruvius	*Jefferson*
Diocletian Doric	8.	9.2
Fortuna Virilis Ionic	9.	8.8
Albano Doric	8.	8.5
Theatre Marcellus Doric	8.	7.5
Diocletian Corinthian	9.5	9.5

Thus it is seen that only in one instance did he follow the mathematical maxims of Palladio and that in his Corinthian, whereas in the Doric of the Bath of Diocletian he diverged more than one diameter. These variations were requisite for

what Jefferson conceived to be perfect proportions for his Tetra-style porticoes, which were of various dimensions. Examples of his artistic genius and of his artistic execution could be multiplied beyond number. Those given suffice the purpose of establishing his third or artistic qualification.

Moreover, remembering that this work was executed nearly a century ago, we could supply evidence of his fourth qualification — that of surveyor and engineer. The lawn itself, with its boundaries and its buildings, was laid out with transit and level manipulated by the hand of Jefferson. Architects of to-day are saved from this by later subdivisions of the sciences.

Architecture was only one of the many human interests with which Jefferson was identified in a most distinguished manner, and, whatever the subject, his relation to it was that of a diligent and discriminating student.

His talent in drawing, although far inferior to the splendid technique characteristic of the modern architect's office, and certainly very meagre as compared with the yards upon yards of blue-prints, elevations, sections, and full-size detail, is, however, despite these deficiencies, which were the limitations of the time rather than the man, clear, expressive, and intelligible. Nor should it be forgotten that the hand guiding the pen was more than seventy-five years old.

University of Virginia: Jefferson's Doric of Albano; Present Administration Building (Pavilion IV)

Without the assistance of trained draftsmen, a handicap which he often deplored, he was loath to copy work which was injured by error or rendered useless by modification, and, as has been mentioned, this fact enables the student of his drawings to determine his order of sequence.

His discriminating selection of types, his genius in combination, the pleasurable exhilaration he produces in his daring but successful contrasts, the tranquillity secured by his harmony earn for him an incontestable place among artistic architects.

That he was able to take such classic models as the Temple of Fortuna Virilis, the Temple of Cori, and the Pantheon, reduce them, modify them, adjust them to a new setting, adapt them to a new purpose and to a different time, yet preserving with extreme fidelity the art in their lines and proportions, will perpetuate his fame as an architect with the power of splendid critical judgment. His was not the quickly grasped and drunken conception of the tyro, who with a few modillions, triglyphs, and metopes, a supply of columns, an assortment of capitals, and a few hundred yards of egg and dart moulding, would undertake the building of an institution for all men for all time. Nowhere does he sacrifice principle, practice rule-of-thumb, or bend to the cheapness of expediency. It was, therefore, with more than his usual characteristic optimism that he could disregard the

critical cant of his own generation and leave the final judgment concerning his buildings to future ages. He reports to the Literary Board: —

It is confidently believed that no considerable system of building within the U.S. has been done on cheaper terms, nor more correctly, faithfully or solidly executed according to the nature of the material used. That the style or scale of the buildings should have met the approbation of every individual judgment was impossible from the various structure of various minds. Whether it has satisfied the general judgment, is not known to us, no previous expression of that was manifested but in the injunctions of the law to provide for the accommodation of ten professors and a competent number of students; and by the subsequent enactments, implying an approbation of the plan reported by the original commissioners, on the requisition of the law constituting them; which plan was exactly that now carried into execution. We had, therefore, no supplementary guide but our own judgments, which we have exercised conscientiously, in adopting a scale and style of building believed to be proportioned to the respectability, the means and wants of our country and such as will be approved in any future condition it may attain. We owed to it to do, not what was to perish with ourselves, but what would remain, be respected and preserved thro other ages. And we fondly hope that the instruction which may flow from this institution, kindly cherished, by advancing the minds of our youth with the growing science of the times, and elevating the views of our citizens generally to the practice of social duties, and the functions of self government, may ensure to our country the reputation, the safety and prosperity, and all the other blessings which experience proves to result from the cultivation and improvement of the general mind. And without going into the monitory history

of the ancient world, in all its quarters, and at all its periods, that of the soil in which we live, and of its occupants indigenous and immigrant, teaches us the awful lesson, that no nation is permitted to live in ignorance with impunity.

In these words, when his plans were completed, he uttered his prophetic hope; his buildings, having now reached the closing years of their first century, are only in their youth, and an appreciative posterity answers him in the affirmative.

Since writing the chapter on the University buildings, there has come into the possession of the author, through Dr. W. M. Randolph, a descendant of Jefferson, the notebook used on July 18, 1817, the day on which Jefferson staked out his plan on a virgin hill. The notes in this book bear further testimony: that Jefferson himself used the theodolite and staked out the plan; that he had at this time constructed his square or lawn; and that he modified the natural fall into grades which would accentuate his architectural perspective. The following is taken from the first page of this notebook:—

Operations at & for the College.

July 18, a. the place at which the theodolite was fixed being the center of the Northern square, and the point destined for some principal building in the level of the square l. m. n. o.

the fall from a. to d. 18 f.

*from a. to d. the bearing magnetically S. 21° W

add for variation . . . . . $2\frac{1}{2}$

S. $23\frac{1}{2}$ W

? the true meridian was that day $2\frac{1}{2}°$ to left of magnetic.

b. is the center of the middle square, and at

g. we propose to erect our first pavilion.

c. is the center of the Southern square.

locust stakes were driven at l. a. f. | g. b. h. | i. c. k. and at d. is a pile of stones.

each square is to be level within itself, with a pavilion at each end to wit at ef. gh. ik. and 10 dormitories on each side of each pavilion filling up the sides of the squares.

from a. to b. was measured 255. f. or 85. yds., b. c. the same, & c. d. the half.

from the points a. b. c. was measured 100. f. each way to ef. gh. ik. making thus each square 255 f. by 200. f. = .8541 of an acre or nearly $\frac{17}{20.}$

* Dec. 7. 19. I took the bearing accurately of the range of pavilions, & found it magnetically S. 21. W. the variation of the needle being that day 4° E. of the true N. or to the right, it is probable that at the operation of July 18, the merid. of mount'n. was inadvertently consid'd. as the true one.

In the same notebook is found an ingenious and interesting scheme for adapting his rotunda dome to the study of astronomy. He knew that it was impossible to secure a mechanic with the mathematical and astronomical training or an astronomer with the mechanical training and understand-

Monticello : Dining-room showing adjoining Tea Room

ing to appreciate his scheme, so he writes his directions so plainly that he insures the results desired whether the undertaker be either a mechanic or an astronomer. To do this he must have understood mechanics better than the best mechanic of his time, and astronomy as well as the best astronomer. To either proposition there are many subscribers. A photograph of the page of his notebook will be interesting in illustrating his ingenuity in adapting a building to astronomical study. We wonder how many architects of to-day are prepared to attack similar problems.

The concave ceiling of the Rotunda is proposed to be painted sky-blue and spangled with gilt stars in their position and magnitude copied exactly from any selected hemisphere of our latitude. A seat for the Operator movable and fixable at any point in the concave, will be necessary, and means of giving to every star it's exact position.

Machinery for moving the Operator.

a. b. c. d . e. f. g. is the inner surface of 90° of the dome.
o. p. is a boom, a white oak sapling of proper strength, it's heel working in the centre of the sphere, by a compound joint admitting motion in any direction, like a ball and socket.
p. q. r. is a rope suspending the small end of the boom, passing over a pully in the zenith at q. and hanging down to the floor, by which it may be raised or lowered to any altitude.
at p. a common saddle, with stirrups is fixed for the seat of the operator, and seated on that, he may by the rope be presented to any point of the concave.

Machinery for locating the stars.

a. s. is the horizontal plane passing thro the centre of the sphere o. an annular ream of wood, of the radius of the sphere must be laid on this plane and graduated to degrees and minutes, the graduation beginning in the North rhomb of the place. Call this the circle of amplitude. a moveable meridian of 90° must then be provided, it's upper end moving on a pivot in the zenith, it's lower end resting on the circle of amplitude, this must be made of thin flexible white oak like the ream of a cotton spinning wheel, and fixed in it's curvature, in a true quadrant by a similar lath of white oak as it's chord a. n. their ends made fast together by clamps. This flexible meridian may be of 6 I. breadth, and graduated to degrees and minutes.

The zenith distance and amplitude of every star must then be obtained from the astronomical tables, place the foot of the moveable meridian in that of the North rhomb of the place, and the polar star at it's zenith distance, and so of every other star of that meridian; then move the foot to another meridian at a convenient interval, mark it's star by their zenith distance, and so go round the circle. *bh. ci. dk. el. fm.* are braces of window cord for keeping the meridian in it's true curve.

perhaps the rope had better be attached to the boom at s. instead of p. to be out of the way of the operator, perhaps also the chord board *an.* had better present it's edge to the meridian than it's side.

if the meridian ark and it's chord be 6 I. wide & 1/2 I. thick they will weigh about 135 lb. and consequently be easily manageable.

if the boom op. be 35 f. long, 6 I. at the but and 3. I. at the small end, it will weigh about 100 lb. and be manageable also.

While much of Mr. Jefferson's renown as an architect rests upon the success he attained in his monumental struc-

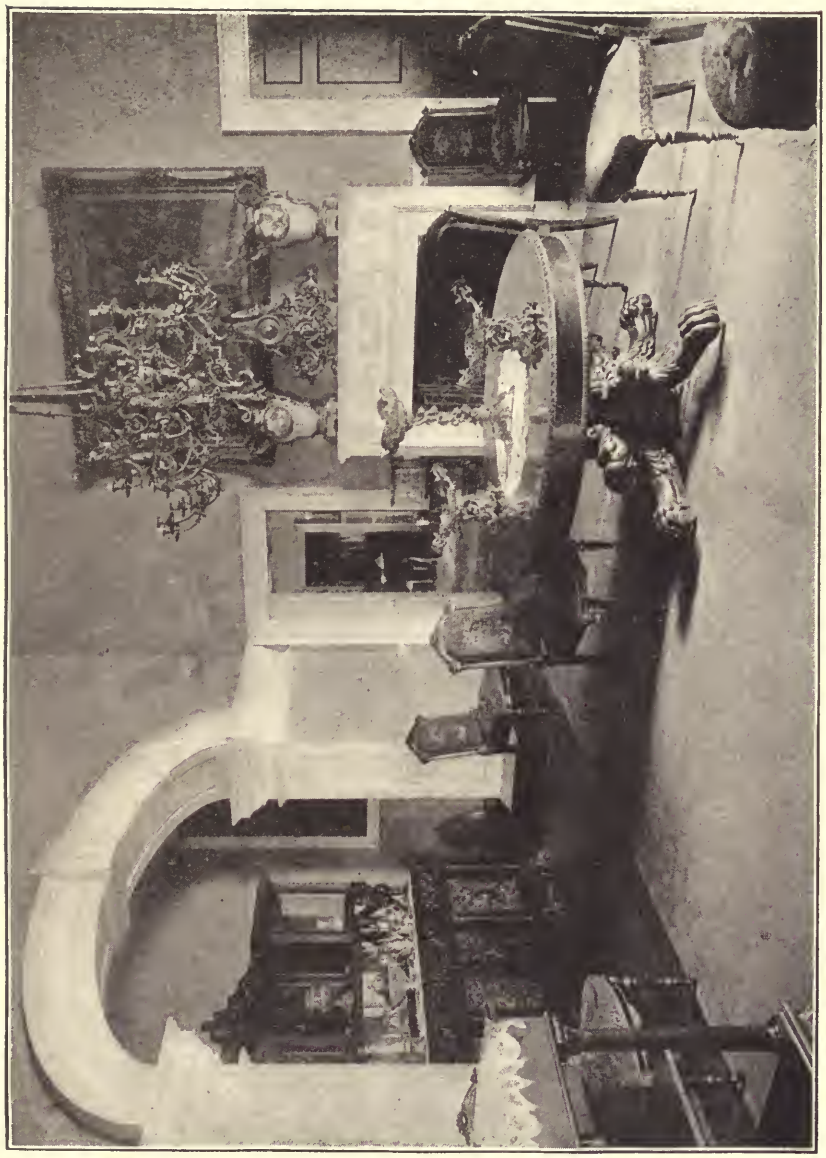
tures, he was not neglectful of obligation in those of less spectacular importance. As the President of the United States, before whom passed with the day's work a panorama of problems of national and absorbing interest, he found time to reflect upon the erection of chicken coops at his Pantops farm. He is unwilling to permit his granddaughter to erect a henhouse until the following summer when he shall have time to attend to its planning. In the construction of his own and his overseer's offices he bestows upon them the same absorbing attention as in the construction of Monticello. He is careful to force them into their proper spheres, by making the art of architecture proclaim and symbolize their function. They possess a dignity, but a dignity in harmony with their service. It was under such varied conditions that the brilliancy of his architectural genius shone. He used architecture for other purposes than shelter or gratification of the love of beauty. Always before him is the "eternal fitness of things." His structures announce their office with characteristic emphasis. A money-changer is a useful institution, but his vocation is not to be followed in the temple. He knew that the architecture of a church or chapel protected the structure and guaranteed its sanctity and that a barn on palatial lines cannot fail to jar the æsthetic sense.

Just before his death, but after he had completed all the

plans for his democratic University, he began the consideration of plans for an astronomical observatory. As in all other problems he sought the experience of mankind. After consulting the plans of all the then existing similar structures, he commenced his rough draft (see Plate XX). On the back of the drawing he wrote his specifications. They are worthy of study, for they also give evidence of his knowledge of construction.

The 4 angular rooms of this drawing are 18 f. diam. in the clear & 18 f. high. This dimension determines all the others. For an Observatory the material attentions are 1. that it be so solid in it's construction, with a foundation and walls so massive as not to be liable to tremble with the wind, walking, etc. 2. That it have ample apertures in every direction. 3. That it have some one position perfectly solid which may command the whole horizon and heavens; with a cupola cover, moveable and high enough to protect long telescopes from the weather. As to height of the building, the less the solider. The Observatories in the considerable cities of Europe are high of necessity to overlook the buildings of the place. That of Paris is 80.f. high. but so much the worse, if avoidable. In the design on the other side, the body of the building is surrounded with a terras of 70.f. square, 4½ f. high, to be filled solidly with stone laid dry and compact, and paved. all the rooms of the building are to be filled compactly with stone, in like manner to the floors, which should be paved. the doors of the 4 passages to be arched in order to unite the 4 octagon rooms together, and to form them into one solid body, all the walls to be 2½ bricks thick. those of the middle rooms to be vaulted together at top, and the hollow between the hemisphere and the square of the walls to be honeycombed with

Monticello : The Dining-room



cross arches their crowns being made strait and level with the crown of the vault. this should rise a little above the top of the roof, so as to give a solid paved terras on the top which may command the whole horison. the Cupola cover should have a cylindrical body of thin light frame work moveable on pulley wheels at bottom in a circular groove, the top a hollow hemisphere, lightly ribbed and covered with tin, the two together high enough to cover a long refractor, of 15 f. for example. this moveable cover should be cut vertically into 2. halves from top to bottom, and the radius of one half should be less than that of the other, and move in an inner groove so that one may be shut into the other, leaving half of the vault of the heavens open to view, thus. over the wall of the mural quadrant must be a fissure in the roof closed with shutters water tight.

This building is proposed for the ordinary purposes of the Astronomical professor and his school, and should be placed on the nearest site proper for it, & convenient to the University. the hill on which the old buildings stand seems to be the best.

The mountain belonging to the University was purchased with a view to a permanent establishment of an Observatory, with an Astronomer resident at it, employed solely in the business of Observation. but I believe a site on the nearest mountain in the S. W. ridge, Montalto for example would be better, because of it's command of the fine horison to the East.

On the margin of this plan he portrays his sterling honesty. After having drawn them he found a scheme better adapted to the function, so he stamps upon his own scheme his emphatic condemnation in these words: —

See an infinitely better plan by Hassler in the Am. Philosoph.

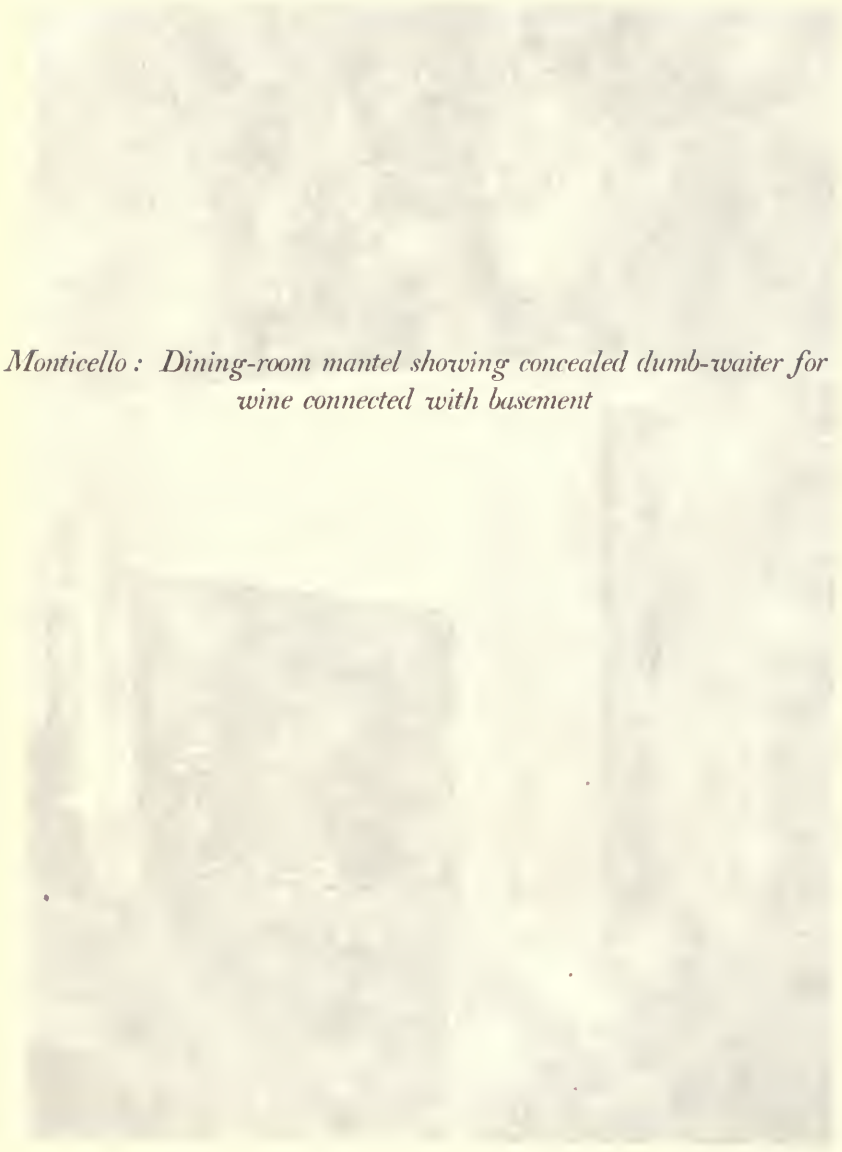
transaction, new series, vol II. Pl. X 1825. See Observatory of Paris 2. Miliria. p.A; 187 Pl IX.c

The writer has had much practical experience with the architects of to-day and has found them exceptionally sincere in being willing to surrender the wrong and grasp the correct, quick to abandon their own error and follow another's truth, but he is not sure that in making the transition they would, all of them, tarry long enough to put the stamp of their own condemnation upon their own work.

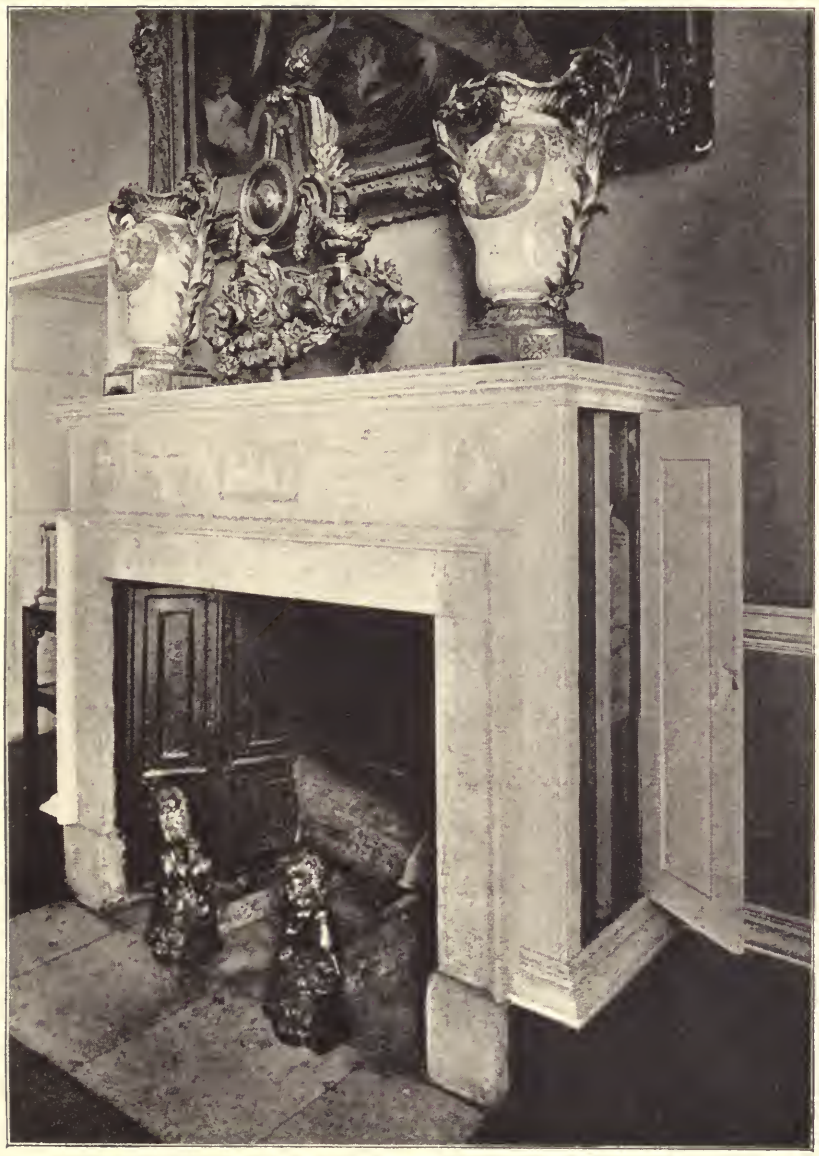
Jefferson's interest in art and monumental architecture is clearly portrayed in his letter to the Comtesse de Tesse while on a tour through Southern France. It also discloses in words, as the University buildings proclaim in works, his slant toward the Roman art.

NISMES, March 20th 1787.

Here I am, Madam, gazing whole hours at the Maison Quarree, like a lover at his mistress. The stocking weavers and silk-spinners around it consider me as a hypochondriac Englishman, about to write with a pistol the last chapter of his history. This is the second time I have been in love since I left Paris. The first was with a Diana at the Chateau de Laye-Espinaye in Beaujolais, a delicious morsel of sculpture, by M. A. Slodtz. This you will say, was in rule, to fall in love with a female beauty; but with a house! It is out of all precedent. No, madam, it is not without a precedent in my own history. While in Paris, I was violently smitten with the Hotel de Salm, and used to go to the Fisheries almost daily to look at it. The *loueuse des chaises* — inattentive to my passion —



Monticello: Dining-room mantel showing concealed dumb-waiter for wine connected with basement



never had the complaisance to place a chair there, so that sitting on the parapet, and twisting my neck around to see the object of my admiration, I generally left it with a *torti-coli*.

From Lyons to Nismes I have been nourished with the remains of Roman grandeur. They have always brought you to my mind because I know your affection for whatever is Roman and noble. At Vienne I thought of you. But I am glad you were not there; for you would have seen me more angry than, I hope, you will ever see me. The Prætorian Palace as it is called — comparable, for its fine proportions, to the Maison Quarree — defaced by the barbarians who have converted it to its present purpose, its beautiful fluted corinthian columns cut out, in part, to make space for Gothic windows, and hewed down, in the residue, to the plane of the building, was enough, you must admit, to disturb my composure. At Orange, too, I thought of you. I was sure you had seen with pleasure the sublime triumphal arch of Marius at the entrance to the city. I went then to the Arenæ. Would you believe, Madam, that in this eighteenth century, in France under the reign of Louis XVI., they are at this moment pulling down the circular wall of this superb remain, to pave a road? And that, too, from a hill which is itself an entire mass of stone, just as fit, and more accessible!

An evidence of Jefferson's resourcefulness is seen in his plan and specifications for a bell-clock which would work automatically. This must be arranged so that the bell can be struck by the operation of the clock machinery and yet it must be possible for the bell-ringer voluntarily to ring it at any hour. He secures this feature by fixing the bell so as to prevent its motion from disturbing the hammers within it.

one of which is connected to the clock machinery by a wire and moves in one plane to make its stroke, the other is attached to a bell-rope to be voluntarily operated by the bell-ringer, and moves in a plane at right angles to the other. His rough sketch will make his mechanism plain. (See Plate XXI.) He calculates the spaces in its dial for hours and minutes, determines the length of the pendulum, improvises a ratchet key for its winding, specifies the weights for its momentum and details the mechanism for its escapement. The clock operated perfectly until it was destroyed in the fire of 1895. Will another survive so long?

It is not easy for those of our time to appreciate the many and the varied character of the difficulties that confronted Jefferson in his building operations.

The settlement at Charlottesville was too small to give aid in the way of mechanics' or of builders' supplies, consequently nearly every article for such purposes and even many of those things needed in everyday life must be made upon the farm. He taught some of the negroes to become good cabinetmakers, carpenters, stonecutters, bricklayers, and blacksmiths. He employed the pickaninnies in a miniature nail factory, which, beside supplying nails for his own use, furnished a surplus to be sold for profit in the neighboring village. In order to accomplish this he stimulated ambition by keeping in operation a system of rewards, distinc-

tions, and promotions amongst those in the handicrafts. He sought out his own clay and made moulds for his brick after providing for shrinkage in burning. He personally investigated the native woods as to color, durability, and adaptability to the various building purposes. He experimented with mortar, seeking to produce one that would stand the dampness of underground tunnels and basement walls. He tried all manner of mixtures of lime, sand, and oils. He knew it could be done, for the Romans had left the Cloaca Maxima as evidence. His conclusions were, in his own words, "1 bushel each of lime, wood ashes and pulverized bricks brought to the proper consistence will harden in water," as he left them on the margin of a sheet of notes to his builders. That it did harden, all the plumbers and steam-fitters who have had to cut through his basement walls will testify. The oxide of lime with the potash which came from his burned wood ashes and his silica and alumina from his incinerated bricks gave the chemicals which the modern man has discovered are requisite for hydraulic cement, in which the following reaction is supposed to take place: —

$$CaO + H_2O = Ca(HO)_2$$
$$3Ca(HO)_2 + SiO_2 = Ca_3SiO_5 + 2H_2O.$$

He discovered that kiln-drying lumber injured its quality, made it brittle, and favored splintering; for this reason he

specified that all flooring and finishing for cornices, windows, and inside trim should be air-dried for two years and followed by one year's seasoning under shelter. He directed the method by which his carpenter's glue was to be made from fresh hides in a pot which itself must rest in another pot of boiling water, in order, as he says, that the adhesiveness may not be lost by excessive heat, and that scorching may not destroy its light color. He made up his own mind about mixing paints and if nineteen and one-half pounds measured more than a gallon he insisted on further stirring.

Such as essayed to do the work of the architect during Jefferson's time were only amateurs, who with an itinerant habit migrated from place to place, to the seat of construction, because they were never able to communicate their ideas by either verbal or graphic instruction. They were in fact builder-architects who did not foresee difficulties, but attempted the solution of building problems only as they arose. Jefferson, on the other hand, while he never neglected personal supervision, communicated his ideas in such exact terms, and in such order of succession, that if faithful adherence was observed the building in his mind would result and none other. No word was ever written which could be omitted, and none which was left out could be added without endangering the successful achievement of the conception.

In 1792, when the United States, a fledgling nation, found

Monticello : Wedgewood insets, one of the side pieces in dining-room mantel and the central piece

itself in need of governmental buildings, advertised for plans for a national "Capitol," a great number were offered, prepared by those who were anxious to secure the prize of five hundred dollars and a city lot, Hoban, Thornton, and "Judge Turner" being among the contestants. The winner was William Thornton. We assume that the victor presented the best plans of the best building, yet history records that the victorious plans were not plans at all — only perspective sketches, such as from which any one of forty different buildings might have been constructed. There were neither ground plans, elevation, nor sections, but only pictures which the Commissioners were forced to choose from. It would be as unfair to contrast the work of the professed architect of that time with the work of a powerfully trained mind like Jefferson's as it would be to pit the pygmy against the giant.

The abiding integrity of Jefferson's building operations, his honesty in construction, his resourcefulness in the combination of materials, his ingenuity in their adaptation, his accurate observation, his scientific slant of mind, his versatility in information, his powers of discrimination, his sense of proportion, all combined with a bigness of mind and an artistic temperament, lifted him at once as an architect from competition with all his contemporaries.

In his main hall at Monticello, Jefferson could face the embers in his grand fireplace, watch the laborers on his Pantops farm,

observe the direction of the wind which by his ingenuity was registered in the ceiling of his portico, read the atmospheric pressure on a barometer constructed by his own hands, compare the external and internal temperature on a double thermometer from his own specifications, and observe the hour on the face of the great hall clock, whose pendulum, escapement, weights, and regulators were built under his personal directions.

To be sure it would be unfair to expect the specialized architect of our day to embody in his equipment such varied qualifications as the old statesman-architect possessed, just as it would be unfair to demand of Jefferson such splendid detail as the modern specialized architect offers. Yet out of the continuous stream of architects who pass his work in review, not one has departed without paying a graceful tribute to his supremacy. Stanford White, when asked why he did not locate his buildings nearer the old Jefferson group, replied in all sincerity that such temerity must be reserved for a more audacious architect.

It is a tribute to the profession of our own generation that, notwithstanding the development of their science and the specialization of their tasks, they maintain a reverence for those who labored under the limiting conditions of the past. And nowhere in their history have they found a figure standing for a higher truth or maintaining a nobler ideal. As future

generations of architects, reviewing and in review, file past his work, they will bare their heads to his fidelity to their art, acknowledge him as the pioneer in an infant profession, and with one acclaim hail the Godfather of the American Architect.

Thomas Jefferson
As a Designer of Landscapes

BY

WARREN H. MANNING

THOMAS JEFFERSON

As a Designer of Landscapes

Mr. Jefferson's writings, his University of Virginia, his Monticello, give unmistakable evidence of his appreciation of landscape, of the value of buildings as elements of landscape, and of the relation that they should bear to the topography and to the outlook of a site.

Had he not loved and appreciated landscape, he would not have said, "And our own dear Monticello, where Nature has spread such a rich mantle under the eye, mountains, forests, rocks, rivers. There is a mountain there in the opposite direction of the afternoon's sun, the valley between which and Monticello, is five hundred feet deep." "How sublime to look down upon the workhouse of Nature to see her clouds, hail, snow, rain, thunder, all fabricated at our feet."

In his outline of the University curriculum in the letter of September 7, 1814, to Peter Carr, President of the Board of Trustees, he designated as his third division, Professional Grades, stating that to the Professional School would come among others, the "agricultor"; to the Department of Rural Economy, the gentleman, the architect, the pleasure gardener, painter, and musician. In the School of Fine Arts he included

Gardening, Painting, Sculpture, Civil Architecture, and the Theory of Music.

Thus in the educational forecast of his greatest monument, the University of Virginia, and in the design of his home as indicated elsewhere, does Jefferson recognize the broader phases of landscaping which at that time was no more clearly differentiated in the popular mind, from gardening, architecture, horticulture, or engineering, than it is to-day.

In Mr. Jefferson's day, the most important constructive work of his century, as well as the classics of the profession that deals with landscape, was being produced in England by such practitioners and writers as Repton, Kent, Price, Gilpin, Pope, and Addison. Of the books then produced, the late Frederick Law Olmsted, the master mind of this profession in America, first placed in the hands of his students Wheatley's "Observations on Modern Gardening." With this book in hand, Mr. Jefferson made "A tour to some of the English gardens" in March and April, 1776, made "chiefly," he states, "for such practical things as might enable me to estimate the expenses of making and maintaining a garden of that style." He says that Wheatley's descriptions "are, in point of style, models of perfect elegance and classical correctness; they are as remarkable for their exactness." Mr. Jefferson, in his own description of these gardens, intelligently and discriminatingly comments upon the merits and defects

Monticello : East elevation showing roof of underground passage (at left) leading to servants' quarters

of the English landscapes and the buildings therein, as he did in earlier notes on travels in France.

There was included with this knowledge and appreciation of the fine arts, a practical interest in and an intimate knowledge of the mechanical devices and methods, and the materials used in the construction of buildings and landscapes. The sketches in his notes of travel, his letters to friends, his minute instructions to his farm superintendent regarding the farming and manufacturing at his Monticello, and the plans and directions for the construction of the University made with his own hands, give abundant evidence of this. He was a skillful surveyor, too, for he in person surveyed and drew the plans of his own estates and the University site. His engineering knowledge enabled him to bring the University water-supply from basins fed with surface and spring water "in wooden pipes from the neighboring high lands," and also to seek for a contingent supply, as indicated by his inquiries "for a person acquainted with the art of boring for water to immense depths. We have occasion for such an artist at our University."

Mr. Jefferson's interest in city planning is also indicated in his letter of February 8, 1805, in which he refers to yellow fever as originating in low, ill-cleansed parts of the town and suggests a "checker-board plan" in which "black squares only to be building squares, and the white ones to be open in turf and trees." "I have accordingly proposed that

the enlargement of New Orleans which must immediately take place shall be upon this plan."

That Mr. Jefferson's "garden" and "gardening" represented in his mind what we term "landscape," is indicated by the statement in his "traveling notes" of June 3, 1788, to young friends who were going abroad; "Gardens [are] peculiarly worth the attention of an American, because it is the country of all others where the noblest gardens may be made without expense. We have only to cut out the superabundant plants."

MONTICELLO

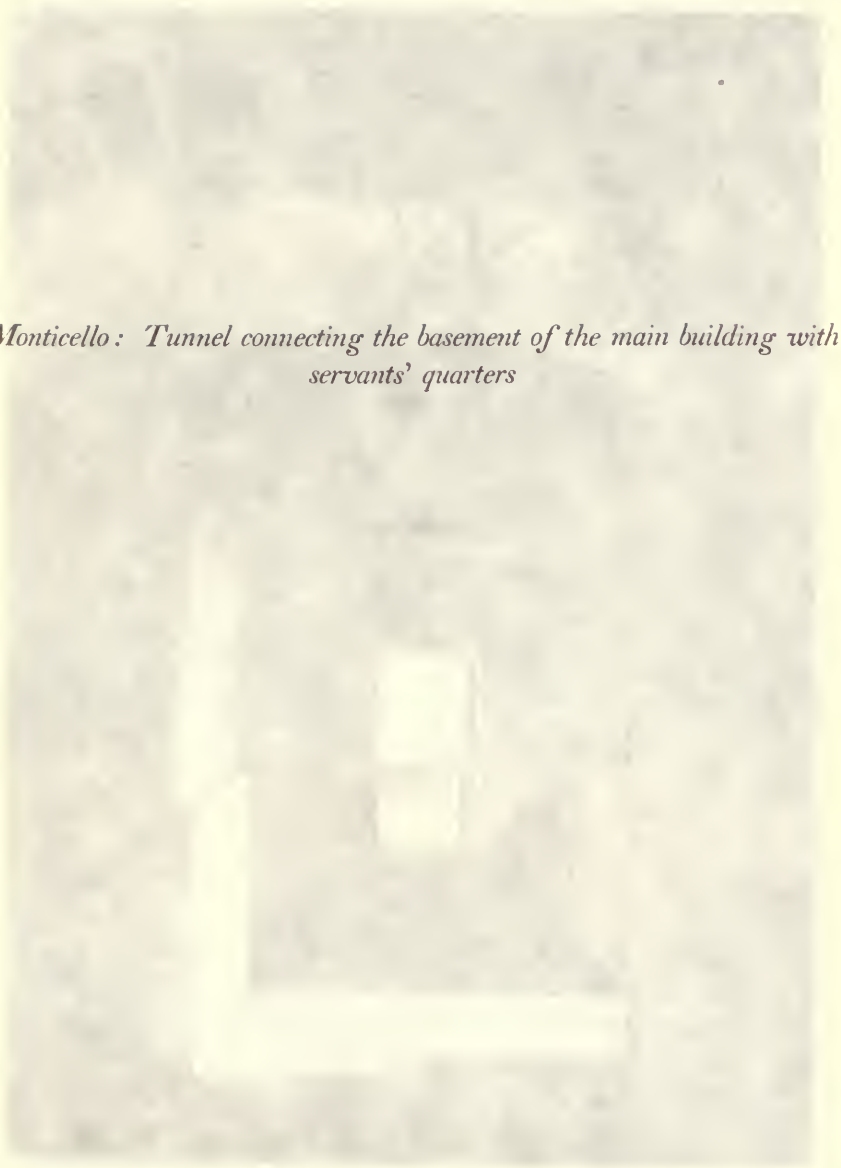
The most notable example of Jefferson's own cutting out of the super-abundant plants to make a landscape is to be observed on the road through his estate from Charlottesville to Monticello. This road, after leaving the village, crosses a tree-arched stream, then follows its shore for some distance before beginning its hillside climb. At a point a little more than halfway up to the saddle of the ridge which is terminated by Monticello is one spot which I conceive was sought out by Jefferson with much woods tramping and tree-climbing to establish viewpoints. Here the steep forested hillside towers uphill above you, and grassy fields fall steeply downhill away from you. To the right is the edge of the Monticello thirty-acre hilltop forest, from which Mr. Jeffer-

son refused to allow the cutting of trees in his day, but which was cut, together with many of his lawn trees, before 1835 by Barkley before it was purchased by Lieutenant Uriah Levy. The edge of the forest touched just the right point on the horizon, and its height increased the depth of the valley below. To the left, a narrow strip of trees was left on the steep roadside bank. Well out and down the slope, and a little to the left of the picture centre, is a group of tall trees with branches sweeping up and out in a quick graceful curve that repeats the down sweeps of the grassy base of the knoll on which they stand. At the foot of the long slope winds the tree-fringed thread of the creek. Then come houses smothered in the trees of the valley. All this is the frame, the foreground, the middle distance with the range of the mountains against the sky. These mountains are made to appear very high by this view over the deep valley and its steep slopes, and between a flaring frame of tall trees, whereas over flat land from the same elevation they would have been rather unimpressive high hills.

The road from here soon passes into the woods, and to the entrance lodge that lies in the saddle of the ridge. From here there is a rather steep climb on a great curve through a wood with a Scotch broom undergrowth by Jefferson's monument to his home. Not far from the lodge the return branch road, recently constructed, is passed on the right, but

its point of departure and angle are so skillfully taken off from the direct uphill road that one is not likely to notice it at all in going up. So, too, is the return road taken off from the inward approach soon after leaving the house and gardens. This down road winds around the slope and by the head of a small valley to the intersection point near the gate lodge. Both roads and the views therefrom lie wholly within the thirty-acre woods, for Jefferson reserved his next fine views for the house site. These views include three great valleys with the Blue Ridge twenty-five miles away, the course of which marks the horizon for eighty miles in view, as well as the Ragged Mountains on the south in the approach-road view.

The house is located just far enough back from the point of the ridge summit to make way for a sweep of gently sloping lawn where a large party of people and their vehicles could gather, turn, and move about. This was made distinctly the entrance side of the house. The house main floor elevation was fixed at a point where its occupants could look over a lawn one hundred and ten feet wide and one hundred and fifteen feet long. From near its floor level, platforms extend east and west to the edge of the retaining wall that holds a part of the south lawn quadrangle in place. This retaining wall extends back to office building terminals on each side, beyond which the lawn surface merges into the natural slope. Along the face of the west part of the retaining



Monticello: Tunnel connecting the basement of the main building with servants' quarters

wall was storage space. Along the face of the east part are the servants' quarters, and to each of these apartments went passages from the house basement under the platform. At the ends of these platforms were outlook points from which are magnificent views, west, north, and east, into valleys and on to distant hills.

From the point where the two roads through the woods meet near the south end of the lawn, the drive passed on a direct and level line, by the ivy-covered ruins of old buildings, then by the terraced kitchen garden on the steep easterly slope at the right, and then on to the farm. These kitchen gardens were constructed mostly during the period when Mr. Jefferson was President of the United States. His overseer states that there were grown here "vegetables of all kinds, figs, grapes, and the greatest variety of fruit." On the west of this entrance road as it passed the house, the terrace at the servants' quarter level was high enough up above the road so that activities thereon could be screened from visitors on foot or in vehicle by a low hedge.

The sunny south lawn was the home lawn where Jefferson and his family were completely protected from the intrusion of visitors who might come in by the only entrance road.

It is not necessary to go further in the description of Monticello to show this man's genius as a designer of a

notable home estate plan, except to say that he gave as much attention to the tree and shrub planting as to other features. Captain Edmund Bacon, who for twenty years was the Monticello overseer, received such written instructions as these: Plant "four Purple Beeches in the clumps which are in the southwest and northwest angles of the houses. The places will be known by the sticks marked No. IV." There were similar notes regarding "Robinias, or Red Locust," "Prickly Ash," "Thorns for Hedges, Fruit Trees, Pecan Nuts," and "Some turfs of a particular grass." Bacon states that Mr. Jefferson always knew everything in every part of his grounds and garden, the name of every tree and just where one was dead or missing. He also states that the grounds about the house were most beautifully ornamented with flowers and shrubbery. There were walks and borders of flowers, some of them in bloom from early in the spring until late in the winter, and a good many were foreign.

The development of the home estate plan and the building of the house extended over a thirty-year period that followed 1764, yet I find no evidence of radical departures from his first conceptions. Study the topography of this section, and you will see that he selected the most commanding of its conveniently accessible sites, certainly the finest site on his father's thirty thousand acres. He clearly recognized in the beginning the big units in the natural beauty of the site, the

Monticello: Entrance to Main Hall from North Portico

relation that the house, its approaches, and the outdoor compartments about it should bear to this beauty, as well as to the convenience and comfort of his family and his visitors.

One of the most important of these landscape units was "the valley five hundred feet deep," the Charlottesville Valley, his "sublime workhouse of Nature." It was here that the site of the University of Virginia was officially located August 1, 1818, on a ridge, where the College Trustees had directed on May 5, 1817, that the first building should be erected. The beauty of this valley had so appealed to Mr. Jefferson, and his conception of the relation of building to landscape was so broad, that he must have had definitely in mind, during all these constructive years, the visual connection between his first love "Monticello" and the University, of which he expressed his desire to be called the father, in the epitaph which he wrote. At his home the westerly slope below the house and its south lawn were cleared of trees and laid in grass. This gave an unobstructed view of the University. On that side of the University ridge that faced Monticello, the outbuildings and the ranges were stepped down the slope to give views over their tops down into the valley and up to Monticello from the professors' quarters in the second story of the pavilion on the East Lawn, as well as from the students' quarters in the East Range. This arrangement pre-

sented the most effective architectural grouping to Jefferson and his friends as they looked down into the valley and to the College group from the home.

THE UNIVERSITY

In the design of the College, Mr. Jefferson had the benefit of foreign travel and the intercourse with distinguished men and women that his position as Ambassador to France and as President of this United States gave him, advantages that had not come to him when he conceived Monticello's plan. This intercourse and his study of this plan gave rise to expressions that represented his appreciation of landscape and its place in design that I have referred to at the outset. While this intercourse aided him in the development of his University plan, it did not impair his originality of thought or independence of action, or his power of adapting the conceptions of others to his special problems without making servile copies. Not only was this true in the units of his plan, but also in his terms of identification, such as "The Lawns," "The Ranges," "The Pavilions."

In Mr. Jefferson's letter of September 7, 1814, to Peter Carr, he states that "In his acquaintance with the organization of the seminaries of other countries and with the opinions of the most enlightened individuals he found no two alike, each being adapted to the condition of the section or

society for which they have been framed. No one could be adopted without change in our country."

His statement of April 2, 1821, with many reasons why a "Village form is preferable to a single great building," forecasts a plan which Mr. Herbert B. Adams refers to as the "modern adaptation of the mediæval idea of cloistered retreats, with colonnades and quadrangles, the latter opening toward the south."

May 5, 1817, the Trustees directed the erection of buildings in accordance with a plan presented "for buildings about a square." Four days later Mr. Jefferson delineated his connected pavilions and dormitories on three sides of a "square" opening south, "with trees and grass," in a letter to Mr. William Thornton. This letter is reproduced in Dr. Lambeth's chapter. On January 6, 1818, the Trustees described the purchase of land "high, dry, open, and furnished with water," and a plan which provided for adding to the buildings "indefinitely hereafter," "the whole in form and effect" to have "the character of an academical village."

On August 1, 1818, a legislative commission meeting at Rock Fish Gap in the Blue Ridge approved the site and the plans, with the knowledge that "one pavilion and its appendix of dormitories" were far advanced and another under way, and that the one hundred and fifty-three acres of land that were added to the original forty-seven acres included

"a considerable eminence" for the erection of a future observatory. This observatory Mr. Leander McCormick, of Chicago, did erect in 1880–81.

Referring again to the reproductions in Dr. Lambeth's chapters, it will be observed that Mr. Jefferson in his first plan located the ranges (dormitories) close to the rear of the lawn, class-room and professors' homes (pavilions), with gardens at the back of the ranges, and then ingeniously reversed the gardens on his plan to bring them between the ranges and lawns by cutting out and reversing a part of his drawing. This last arrangement permitted a direct access by stairs to the gardens from the professors' homes in the second story of the pavilions which were included in one plan and partly built, as indicated by Dr. Lambeth. The service road and yard, used in common by two pavilions, were shut off from the gardens by the serpentine walls. Thus you will see he provided a secluded outdoor compartment for professors' families that corresponded to his Monticello south lawn.

Regarding these changes, Mr. J. C. Cabel, who was Mr. Jefferson's most helpful legislative co-worker, but whose criticism on the style and constructions of buildings were generally not accepted, says, "I was extremely happy to be informed by General Cocke that you had annexed the gardens to the back yards of the pavilions."

In locating the group of buildings, Mr. Jefferson so fixed

the main axis line of his quadrangle that the southerly view to the court was over a rather precipitous narrow valley running across the axis line with a narrow ridge beyond, and then at some distance a high hill view, really a fine outlook. I find no evidence that it ever was Mr. Jefferson's intent to close up this view and this "opening south." Apparently the indefinite extensions he had in view at that time were to be continuations of the lawns and the ranges. The erection of a modern building across this southerly end has shut out the view from the lawn, but not much of the light. This work is so well done, however, that it will always remain as a worthy monument to the skill of the designer, Stanford White.

The rotunda also was placed at the head of a valley, running with the axis line, and through which a most effective view of this structure was to be obtained from uplands a third of a mile to the north.

It will be observed that this orientation of the quadrangle was made to take advantage of the steep slopes and valleys in making both outlook and inlook to landscapes and buildings more effective, in the same manner that similar situations were taken advantage of at Monticello at the fine view on the road up, as well as in the location of the house. That this was a result of a study of his landscape and topography is made evident by the fact that he did not follow the line of least

resistance or the exact north and south line. That he regarded the lines thus established as essential elements of his design is indicated by his refusal to accept the recommendation of Mr. A. C. Brockenbrough, his superintendent of construction, who wrote May 1, 1820, that adherence to the plan would require at "Hotel A" of the West Range a "bank 7 feet high and then the cellar to dig out; in order to save some labor I propose advancing the building a few feet in the street and then throwing the street more to the east."

With these references to the landscape phases of Mr. Jefferson's design and a previous reference to his stepping down the building on the Monticello side of the slope, I would have you read Dr. Lambeth's statement regarding the false perspective which he so skillfully developed in his view from the rotunda between the connected pavilions of the East and West Lawns toward the view that he had retained by keeping his "opening south."

Some of the circumstances attending the location and construction of the University, showing Mr. Jefferson's responsibility for the minutest detail, will be of interest.

You will observe Dr. Lambeth's reproduction of the original survey notes made about the time the buildings were located, and Mr. Jefferson's footnotes on discrepancies thereon.

Captain Bacon states that Mr. Jefferson wrote the deed himself for the first purchase of forty-seven acres, which

Captain Bacon says "was a poor old turned-out field, finely situated." He also states that Mr. Jefferson negotiated the second purchase of one hundred and fifty-three acres on the "considerable eminence" having "much fine timber and rock used in building the University." These two hundred acres cost $1518.75.

From Mr. Tucker's "Life of Jefferson" (1837) comes the statement that from the spring of 1819, Mr. Jefferson procured the different workmen and superintended the building of the University. "He not only formed a general plan of the buildings, but drafts of every subordinate part were made by him." Captain Bacon describes minutely the event of Mr. Jefferson's laying out the entire foundation of the University with rule, pegs, and twine, and then immediately setting at work upon it the ten men assembled for the purpose. He also described Mr. Jefferson's almost daily visits of inspection regardless of storms or company, and his rigid rejection of poor materials. He refers also to the great time and the crowds that were at the laying of the corner-stone by President James Monroe, who was a Trustee, as were Presidents Madison and Jefferson, both being at this ceremony on October 6, 1817.

It is quite obvious that Mr. Jefferson's interest in gardens and lawns was quite as great as it was in the buildings, and that he intended to have tree plantations made, as indicated

by his description of his square "opening south, with trees and grass." The work on the gardens and lawns went on with the building, the cost of back yards and gardens being up to 1821 fifteen hundred dollars. In 1822 he refers to the pavilions with their gardens, to the garden walls and parts of the grounds, and on October 26, 1823, he reports, "the garden walls are finished, the lawn is graded."

While we know that Mr. Jefferson made and executed his own landscape planting studies at Monticello and intended to have trees on the lawns at the University, as stated above, I do not find that any trees were planted under his personal direction or in accordance with any planting plan he may have made. The only record I have of tree planting is that the original trees of the two rows on the lawn were planted in 1840, the present red maples and ash about 1860. Other trees about the grounds were evidently planted at various times without proper consideration, for they almost wholly hide the buildings from every viewpoint.

Mr. Jefferson did, however, have definite plans for the creation of an arboretum, and in the preparation of this he was assisted by the Abbé Corriea de Serra. On April 17, 1826, two months before his death, he sent Professor Emmet a detailed plan of six acres, which included, as he states, the extent of ground to be employed, the number and character of plants to be introduced on it, "restrained altogether to

objects of use and indulging not at all in things of mere curiosity, and especially not yet thinking of a hothouse, or even a greenhouse." After having "diligently examined all our grounds" as to the "circumstances of soil, water, and distance," Jefferson recommended a place on "the public road at the upper corner of our possessions where the stream issues from them," a trapezoid one hundred and seventy yards square, the breadth of which would take "all the ground between the road and the dam of the brick ponds, extending eastwardly up the hill, — the bottom ground for garden plants (four acres), the hillsides for the trees (two acres). He would inclose the ground with a serpentine wall seven feet high (eighty thousand bricks for eight hundred dollars), or for a while posts and rails. He would form all the hillside into level terraces curving with the hill, and the level ground into beds and alleys. Lastly, he would secure a gardener with sufficient skill. His source of seeds would be "our seed ships, English gardens and seed shops, our ministers and consuls," and especially "my good old friend Thouin," of the Garden of Plants at Paris, who for twenty-three years had regularly sent him a box of exotic seeds which, he writes, "I regularly sent to the public and private gardens of the other states." He refers also to securing seed from a larch tree at Monticello, and from a marronnier or cork oak tree at Mount Vernon.

Jefferson as a Designer of Landscapes

Mr. Jefferson's biographers have not touched upon his broad conception of landscape which I have endeavored to make clear, wherein buildings are considered as important incidents in a landscape to be definitely and accurately co-related to it. The importance of this co-relation is coming to be more and more clearly recognized to-day, because that profession that designs and constructs landscapes, and arranges for the location of buildings and arrangement of grounds, is securing year by year more effective results in coöperation with that profession that designs and constructs buildings.

If this chapter will help more definitely to differentiate the responsibilities of these professions in the public mind, then it is well that it should have been written.

THE END

Plates Illustrating the Text

PLATE I. Plan of Bremo, showing moat around front of lawn, and the parapet wall separating front from rear lawn, at the same time connecting the end pavilions with the main building.

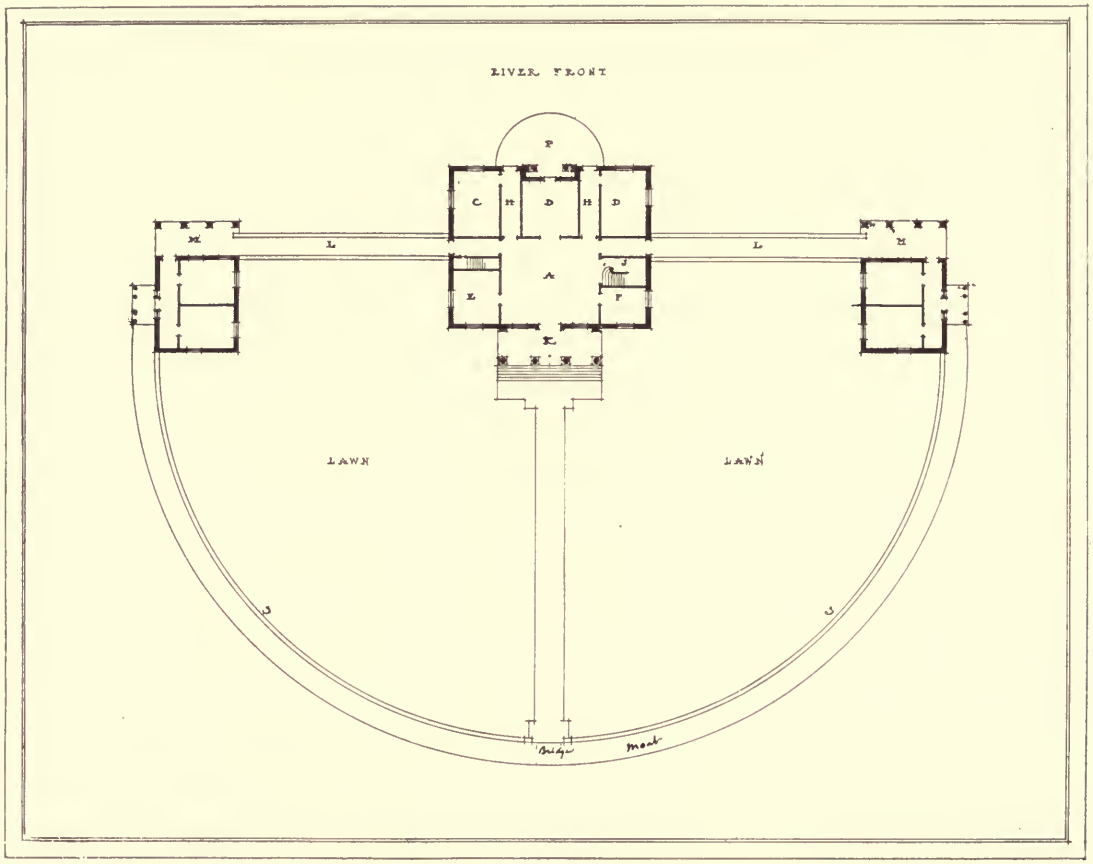

RIVER FRONT
P
C
H
D
H
D
M
L
L
N
A
J
E
F
K
LAWN
LAWN
J
J
Bridge
moat

PLATE II. Principal floor plan of Monticello.

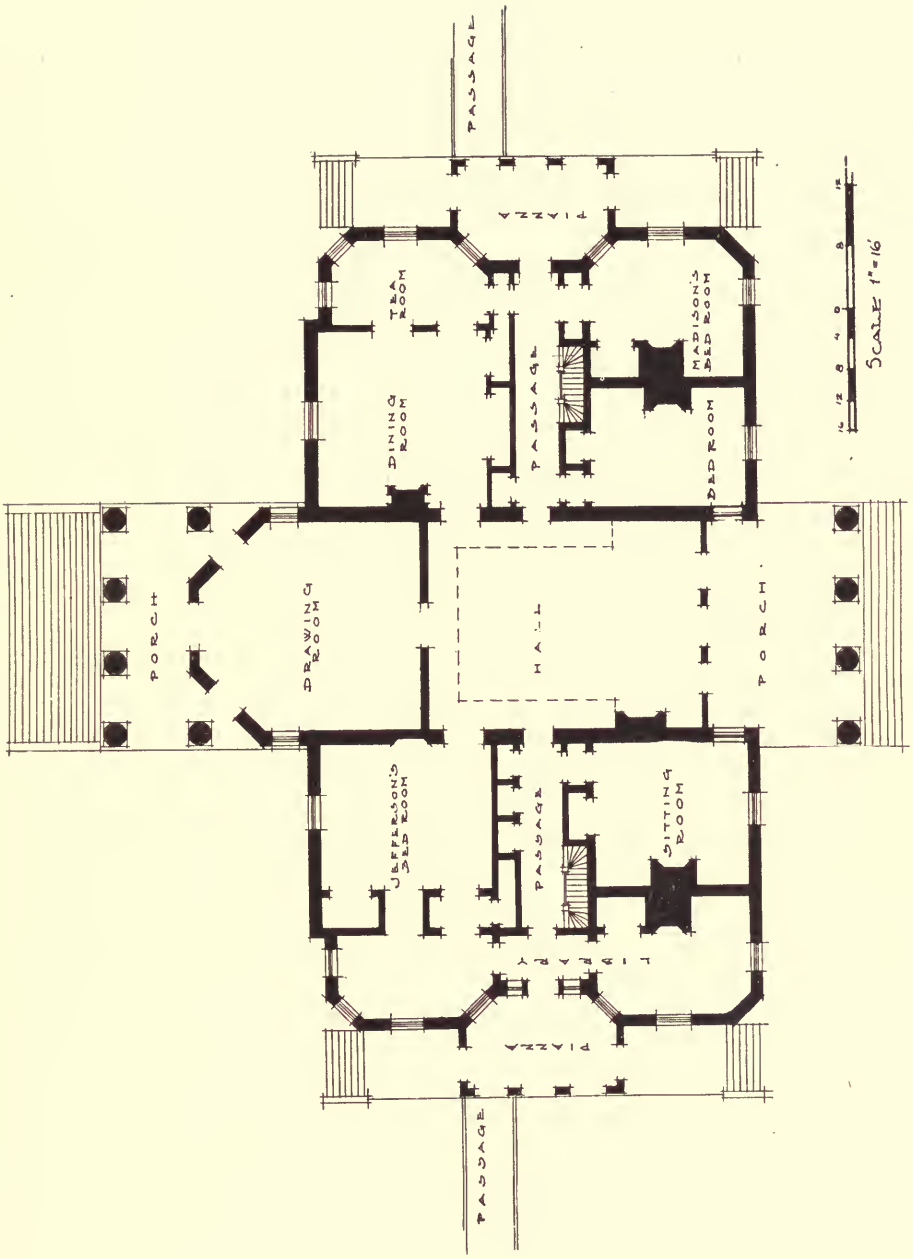
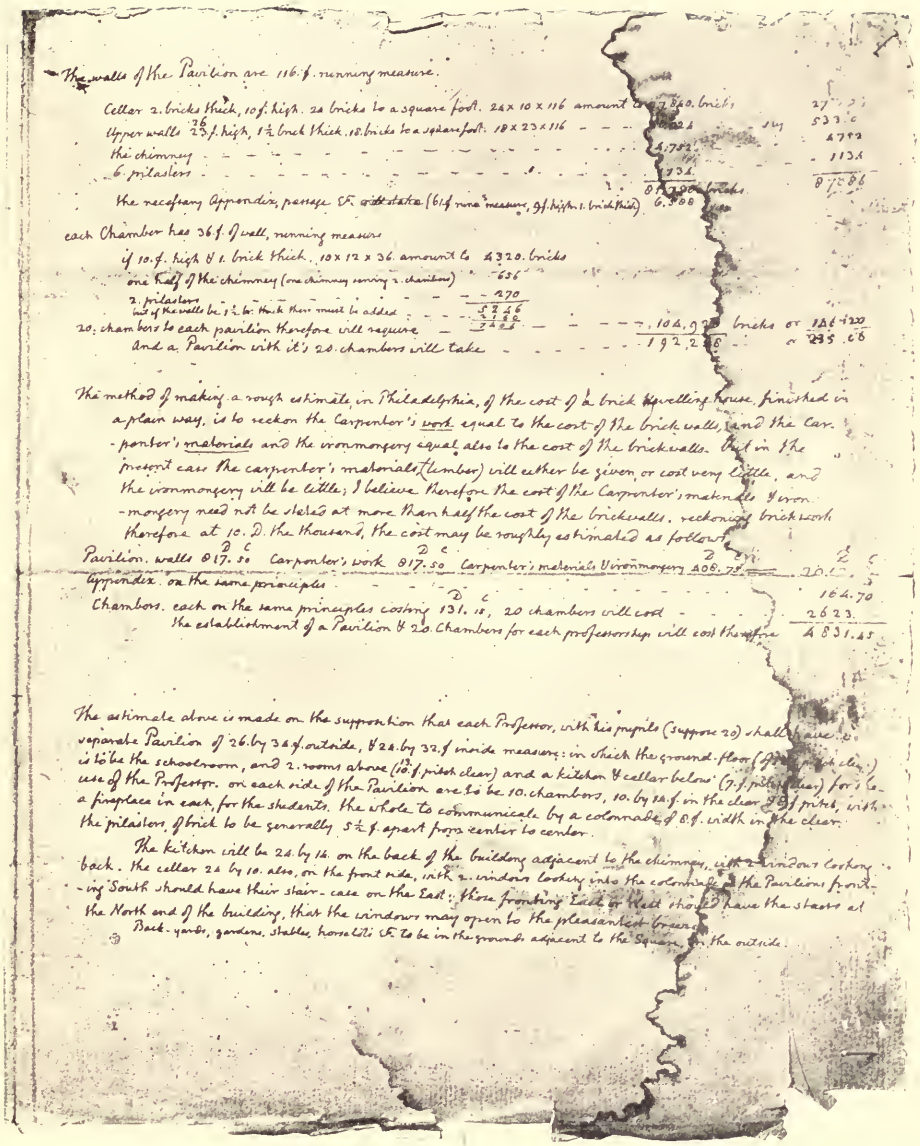

PASSAGE
PIAZZA
TEA ROOM
DINING ROOM
PASSAGE
MADISON'S BED ROOM
BED ROOM
SCALE 1"=16'
PORCH
DRAWING ROOM
HALL
PORCH
JEFFERSON'S BED ROOM
PASSAGE
SITTING ROOM
LIBRARY
PIAZZA
PASSAGE

PLATE III. Part of a letter from Jefferson to President of Literary Fund, showing how he attempted to carve his capital from native stone.

another instance was the importation of a foreign Artist, for carving the capitels of the more difficult orders of the buildings. the few persons in this country, capable of that work, were able to obtain elsewhere such high prices for their skill and labor that we believed it would be economy to procure an Artist from some country where skill is more abundant, & labor cheaper. we did so. but on trial the stone we had counted on in the neighborhood of the University was found totally insusceptible of delicate work; and some from a very distant, but the nearest other quarry known, besides a heavy expence attending it's transportation, was extremely tedious to work and believed not proof against the influences of the weather. in the mean time we had enquired and learned that the same capitels could be furnished in Italy, and delivered in our own ports for a half, or third of the price in marble, which they would have cost us here in doubtful stone. we arrested the work here therefore, and compromised with our Artist at the expence of his past wages, his board and passage hither, amounting to D 1390. 56 C. these are the only instances of false expence which have occurred within our knolege.

PLATE IV. First lay-out of the University group adopted by the trustees May 5, 1817, together with specifications and estimate, for the first pavilion, which Jefferson placed on the reverse side of the same sheet.



The walls of the Pavilion are 116 f. running measure.

Cellar 2. bricks thick, 10 f. high. 20 bricks to a square foot. 24 x 10 x 116 amount to 27840. brick
Upper walls 26 23 f. high, 1½ brick thick. 18 bricks to a square foot. 18 x 23 x 116 — — — 48024
the chimney — — — — — — — — — — — — — 4752
6 pilasters — — — — — — — — — — — — — 1134
0 1 0 0 bricks 81750 86

the necessary Appendix, passage &c. with stairs (61 f. nine measure, 9 f. high. 1. brick thick) 6.588

each Chamber has 36 f. of wall, running measure

if 10. f. high & 1. brick thick. 10 x 12 x 36. amount to 4320. bricks
one half of the chimney (one chimney serving 2. chambers) — 636
2. pilasters — — — — — — — — 270
wall of the walls be 1½ br. thick there must be added — — — 5256
20. chambers to each pavilion therefore will require — — — — 7,104,960 bricks or 1065 220
And a Pavilion with it's 20. chambers will take — — — — — 192,256 or 235 .68

The method of making a rough estimate in Philadelphia, of the cost of a brick dwelling house, finished in a plain way, is to reckon the Carpenter's work equal to the cost of the brick walls, and the Carpenter's materials and the ironmongery equal also to the cost of the brickwalls. But in the present case the carpenter's materials (lumber) will either be given, or cost very little, and the ironmongery will be little, I believe therefore the cost of the Carpenter's materials & ironmongery need not be stated at more than half the cost of the brickwalls, reckoning brick work therefore at 10. D. the thousand, the cost may be roughly estimated as follows

D C D C £ s
Pavilion. walls 817.50 Carpenter's work 817.50 Carpenter's materials & ironmongery 408.75 — — 20.1
Appendix. on the same principles — — — — — — — — — — 164.70
Chambers. each on the same principles costing 131. 10, 20 chambers will cost — — — 2623.
The establishment of a Pavilion & 20 Chambers for each professorship will cost therefore £ 831.45

The estimate above is made on the supposition that each Professor, with his pupils (suppose 20) shall have a separate Pavilion of 26. by 36 f. outside, & 24. by 32. f. inside measure; in which the ground floor (9 f. high clear) is to be the schoolroom, and 2. rooms above (10 f. pitch clear) and a kitchen & cellar below (7 f. pitch clear) for the use of the Professor. on each side of the Pavilion are to be 10. chambers, 10. by 12 f. in the clear & 8 f. pitch, with a fireplace in each, for the students. the whole to communicate by a colonnade 8 f. width in the clear between the pilasters, of brick to be generally 5½ f. apart from center to center.

The kitchen will be 24. by 16. on the back of the building adjacent to the chimney, with 2 windows looking back. the cellar 24 by 10. also, on the front side, with 2. windows looking into the colonnade. the Pavilions fronting South should have their stair-case on the East: those fronting East or West should have the stairs at the North end of the building, that the windows may open to the pleasantest Green.

Back-yards, gardens, stables, horse-lots &c. to be in the grounds adjacent to the Square, on the outside.

PLATE V. The upper half of the cut shows an elevation of the first story of the first pavilion. The Tuscan arches on which Jefferson superimposed his doric of Palladio. The lower half shows the plan of the first pavilion, with its side entrance for the Professor's household, also showing the plan of adjacent dormitories, with the Tuscan arcade in front of them.

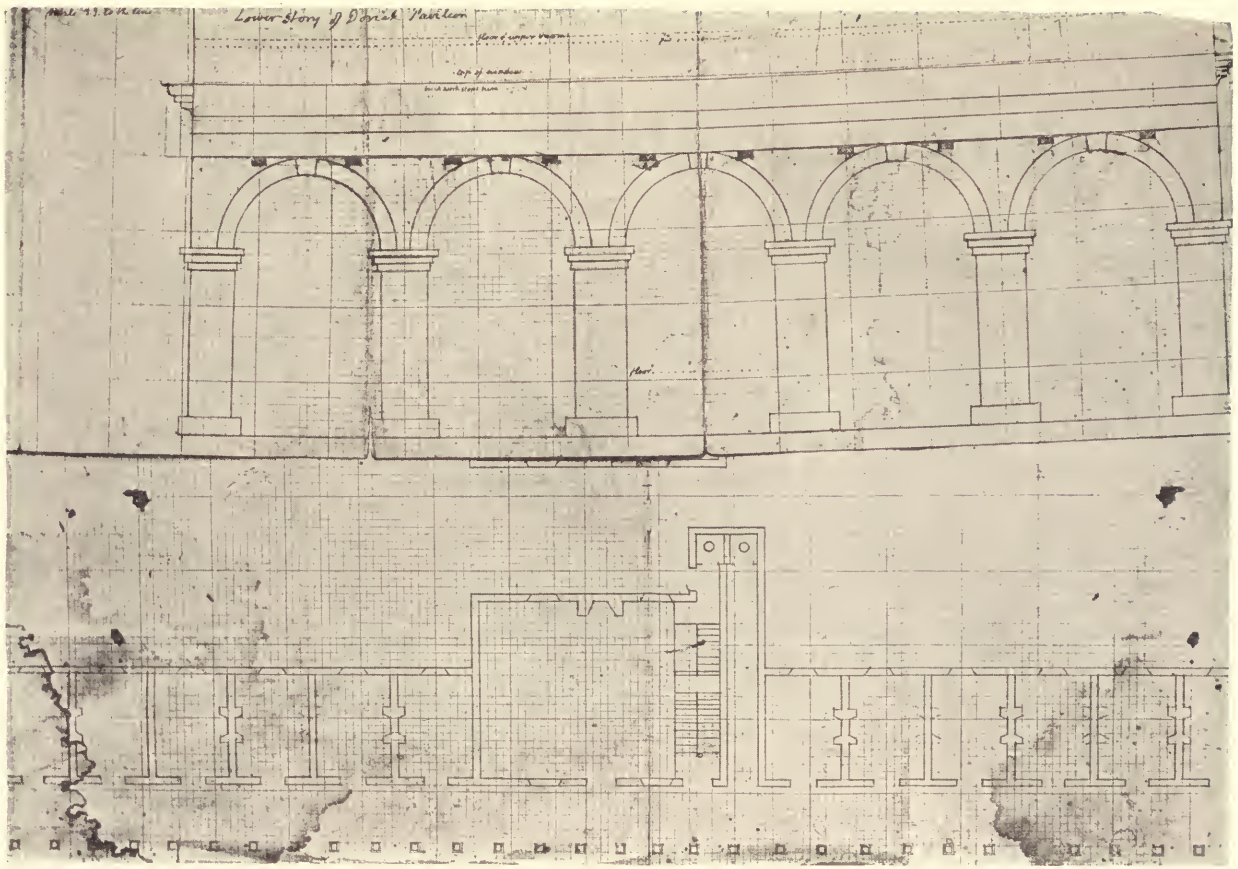

Lower Story of Doric Pavilion

PLATE VI. A page of Jefferson's pocket notebook containing notes for his first pavilion or the dormitories and Tuscan colonnade attached thereto.

Pavilion No. B. VII.

The upper story of the Pavilion to be Doric, with a Palmyrian Portico of 6 columns. I assume 16 ♩ for their diam. because the laws of the order will then give results corresponding with the dimensions of the building proposed.

the base	0-30 = 0-8	projects 10 = 2.666	
shaft	7-0 = 9-4		
capital	0-30 = 0-8		
	8-0 = 10-8		
architrave	0-30 = 0-8		
frize	- - 45 = 1-		
cornice	1-38 = 0-10.133		
	1-53 = 2-6		
	13-2		

The axes of the columns 10.66 within the surface of the arch below

a triglyph & metop 20.♩

from center to center of columns, 4. trigl. = 80 = 6-8

5. columns & intercolns	33-4	
+ ½ diam. ♂ diam. 52 =	1-1.866	[say 52½ = 1-2]
breadth of brick work at top	34-5.866	[say 34-6]
+ Side projn = 2×50	2-2.666	
whole span of pediment	36-8.533	[say 36-8.666]
⅔ of which is	8-1.096	[say 8-1.926 or 8-2]

an intercolumniation is 80 − 16 = 64 = 5-4

the arches under the portico must be of course 80.♩ from center to center of pier.

give ⅛ of this to the pier, to wit 20.♩

⅜ to the opening of the arch 60.♩

give 1⅜ squares to the height of the arch 105 = 8-9

which leaves between the void of the arch & the bottom of the Tuscan entabl. space for an architrave of 26′ = 6.933 ♩.

the impost should be in height 35′ = 9.333

it's projection 16′ = 4.266 broken into 3. ♩ 1.422

the thickness of the piers is 60′ = 16 ♩. that these may correspond with the pilasters of the colonnade

the height of their base the same as those of the pilasters

the floor of the portico on a level with those of dormidory

it must declive from the building towards the front.

the guttered joints must discharge their wate thro the architrave of the Tuscan by projecting 1. ♩. beyond it's 1st face, the opening to be masked by a thin square board, cutting the mouldings of the architrave as the keystone of an arch does

the secret roofplats must correspond with the arches so as that the guttered joint may fall over their centers

the floor of the lacketing room to be 2. ♩ above ♀ of arcade to admit some light and air into the offices below.

the floors of the offices 6 ♩ below the surface of the ground.

0 - ¾	.2
1 —	.266
1¼ —	.333
1⅓ —	.355
1½ —	.4
1¾ —	.466
2¼ —	.6
2⅔ —	.711
3 —	.8
3¼ —	.866
3⅓ —	.888
3½ —	.933
3¾ —	1.
4 —	1.066
4½ —	1.2
4¾ —	1.266
5 —	1.333
6 —	1.6
6½ —	1.733
6⅔ —	1.777
6¾ —	1.8
7½ —	2.
7¾ —	2.066
8 —	2.133
8¾ —	2.333
9 —	2.4
10 —	2.666
10½ —	2.8
11 —	2.933
11½ —	3.066
12¾ —	3.4
14½ —	3.866
15 —	4.
16½ —	4.4
26 —	6.933
27 —	7.199
28 —	7.466
29 —	7.733
30 —	8.
30½ —	8.133
33½ —	8.933
35 —	9.333
35½ —	9.466
36 —	9.6
36⅔ —	9.777
39 —	10.4
39½ —	10.533
40 —	10.666
45 —	12.
60 —	16.
64½ —	17.2
68 —	18.133

Dormitories to N° [illegible] VII.

The Covered way in front of the whole range of buildings is to be Tuscan, with columns of brick. rough cast their diam. 16. I. but in front of the Pavilions to be arches, in order to support the Columns of the Portico above more solidly.

Tuscan. a zocle of 12. I. under the whole colonnade to raise it's floor above the ground, & to project beyond the face 10' = 2.67

shaft. base	8. I	
just	.96.	
capitel	8.	= 112 = 9-4
architrave	9.333	
frize	6.933	
cornice	11.599	27.866 = 2 = 3.86
		139-866 = 11-7.06

projection of cornice 43½ = 11.599

each Dormitory being 11. f. from center to center of it's partition walls, there will be 2. inter-colonnations of 4. f. 2 I. each to every Dormitory. to wit. 2. intercolns 8-4

2 pilasters columns 2. 8

11-

The centers of the intercolns must answer to the centers of the doors & of the partition walls.

The cover of the Dormitories & colonnade to be in secret roofleds of 24-9 span, the joists being 1 4½ from center to center, declining from front to back so that the guttered joist shall discharge all it's water on the backside of the building. These roofleds with their joists & terrace floors to occupy the thickness of the entablature, 2-4.

The pilasters being of brick, their bases are 30 = 8 I high, and project 10' = 2.67 I.

The pilasters diminishes to 45' = 12 I.

The capitel 30' = 8 I. high, project. 10' = 2.67

The floors of the dormitories to be 1 f. above that of the floor of the lecturing room 2 f above that of the colonnade.

1'	= .266
1½	= .399
2	= .533
2½	= .666
3	= .799
3½	= .933
4.	= 1.066
5.	= 1.333
5½	= 1.466
7½	= 1.999
8½	= 2.266
9	= 2.399
10	= 2.665
12½	= 3.333
17½	= 4.666
22½	= 5.999
24.	= 6.399
26	= 6.933
27	= 7.199
27¼	= 7.266
30	= 8.
32	= 8.533
35	= 9.333
43¼	= 11.599
45 52½	= 12. = 13.933
54⅙	= 14.466
60.	= 16.
66.	= 17.599

The arcade colonnade

Pavilion No. 8. VII.

The upper story of the ~~[illegible]~~ Pavilion to be Doric, with a Pedimented Portico of 6 columns. I assume 16 ♩ for their diameter because the laws of the order will then give results corresponding with the dimensions of the building proposed.

		♩
the base	0-30 = 0-8	projects 10 = 2.666
shaft	7-0 = 9-4	
capital	0-30 = 0-8	
	8-0 = 10-8	
architrave	0-30 = 0-8	
frize	45 = 1-	
cornice	38 = 0-10.133	
	1-53 = 2-6	
	13-2	

the axes of the columns [illegible] 10.66 within the surface of the arch below

a triglyph & metop[illegible] 20.♩.

from center to center of columns 4. trigl.	= 80 = 6-8	
5. columns & intercolns	33-4	
+ diam. ♩ diam. 53' =	1-1.866	[say 52½ = 1-12]
breadth of brick work at top	34-5.866	[say 34-6]
+ Table projr. = 2×50'	2-2.666	
whole span of pediment	36-8.533	[say 36-8.666]
⅔ of which is	8-1.096	[say 8-1.926 or 8-2]

an intercolumnation is 80 − 16 = 64 = 5-4

the arches under the portico must be of course 80.♩ from center to center of pier.

give ⅛ of this to the pier, to wit 20.♩

⅜ to the opening of the arch 60.♩

give 1¾ squares to the height of the arch 105 = 8-9

which leaves between the void of the arch & the bottom of the Tuscan entabl. space for an architrave of 26' = 6.933 ♩.

the impost should be in height 35' = 9.33 ♩

it's projection 16' = 4.266 broken into 3.♩1.422

the thickness of the piers is 60' = 16 ♩. that these may correspond with the pilasters of the colonnade

the height of their base the same as those of the pilasters

the floor of the portico on a level with those of Dormidory

it must decline from the building towards the front.

the gutter of joists must discharge their wake thro the [illegible] of the Tuscan by projecting 1.♩ beyond it's 1st face, the opening to be masked by a thin square board, cutting the mouldings of the architrave as the keystone of an arch does

the secret vaults must correspond with the piers and arches so as that the gutter of joist may fall over their centers

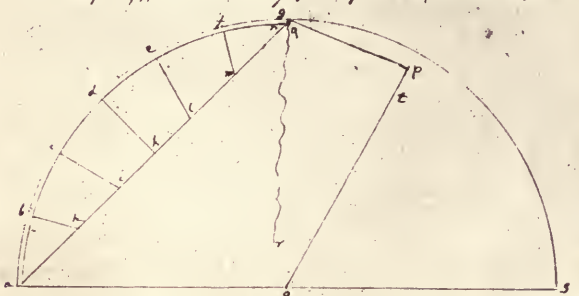
the floor of the lecturing room to be 2. f above ¼ of arcades to admit some light and air into the offices below.

the floors of the offices 6 f below the surface of the ground.

	♩
0-¾	.2
1-	.266
1¼	.333
1⅓	.355
1½	.4
1¾	.466
2¼	.6
2⅔	.711
3	.8
3¼	.866
3⅓	.888
3½	.933
3¾	1.
4	1.066
4½	1.2
4¾	1.266
5	1.333
6	1.6
6½	1.733
6⅔	1.777
6¾	1.8
7½	2.
7¾	2.066
8	2.133
8¾	2.333
9	2.4
10	2.666
10½	2.8
11	2.933
11½	3.066
12¾	3.4
14½	3.866
15	4.
16½	4.4
26	6.933
27	7.199
28	7.466
29	7.733
30	8.
30½	8.133
33½	8.933
35	9.333
35½	9.466
36	9.6
36⅔	9.777
39	10.4
39½	10.533
40	10.666
45	12.
60	16.
64½	17.2
68	18.133

PLATE VII. University of Virginia. A page from Jefferson's pocket note-book showing his plan for adapting the ceiling of his rotunda to the purpose of teaching astronomy.

The concave cieling of the Rotunda is proposed to be painted sky-blue and spangled with gilt stars in their position and magnitude copied exactly from any selected hemisphere of our latitude. a seat for the Operator movable and fixable at any point in the concave, will be necessary, and means of giving to every star it's exact position.



Machinery for moving the Operator.

a.b.c.d.e.f.g. is the inner surface of 90°. of the dome

o.p. is a boom, a white oak sapling of proper strength, it's heal working on the center of the sphere, by a compound joint admitting motion in any direction, like a ball and socket.

p.q.r. is a rope suspending the small end of the boom, passing over a pully in the zenith at q. and hanging down to the floor, by which it may be raised or lowered to any altitude.

at p. a common saddle, with stirrups is fixed for the seat of the operator and seated on that he may by the rope be presented to any point of the concave.

Machinery for locating the stars.

a.s. is the horizontal plane passing thro the center of the sphere o. an annular ream of wood, of the radius of the sphere must be laid on this plane and graduated to degrees and minutes, the graduation beginning in the North & South of the place. call this the circle of amplitude. a moveable meridian of 90°. must then be provided it's upper end moving on a pivot in the zenith, it's lower end resting on the circle of amplitude. this must be made of thin flexible white oak like the ream of a cotton spinning wheel, and fixed in it's curvature, in a true quadrant by a similar lath of white oak as it's chord a.n. their ends made fast together by clamps. This flexible meridian may be of 6.I. breadth, and graduated to degrees and minutes.

the zenith distance and amplitude of every star must then be obtained from the astronomical tables. place the foot of the moveable meridian in that of the North & South of the place, and the pole star at it's zenith distance. and so of every other star of that meridian: then move the foot to another meridian at a convenient interval, mark it's stars by their zenith distance, and so go round the circle

Wr. ci. dk. el. fm. are braces of window cord for keeping the meridian in it's true curve.

perhaps the rope had better be attached to the boom at s. instead of p. to be out of the spray of the operator. perhaps also the chord-board an had better present it's edge to the meridian than it's side.

if the meridian arch and it's chord be 6.I. wide & ½ I. thick they will weigh about 135.lb. and consequently be easily manageable.

if the boom op. be 35.f. long, 6.I. at the but & 3.I. at the small end, it will weigh about 100.lb. and be manageable also

PLATE VIII. First plan of the double ranges of buildings showing how Jefferson cut out with his pen-knife the piece which contained West Range facing the lawn. In this plate the original piece is replaced.

I.
II.
III.
IV.
V.
A
B.
I.
II.
III.
IV.

PLATE IX. The same original plan with the piece of paper laid in place containing the revision — the new range now facing away from the lawn.

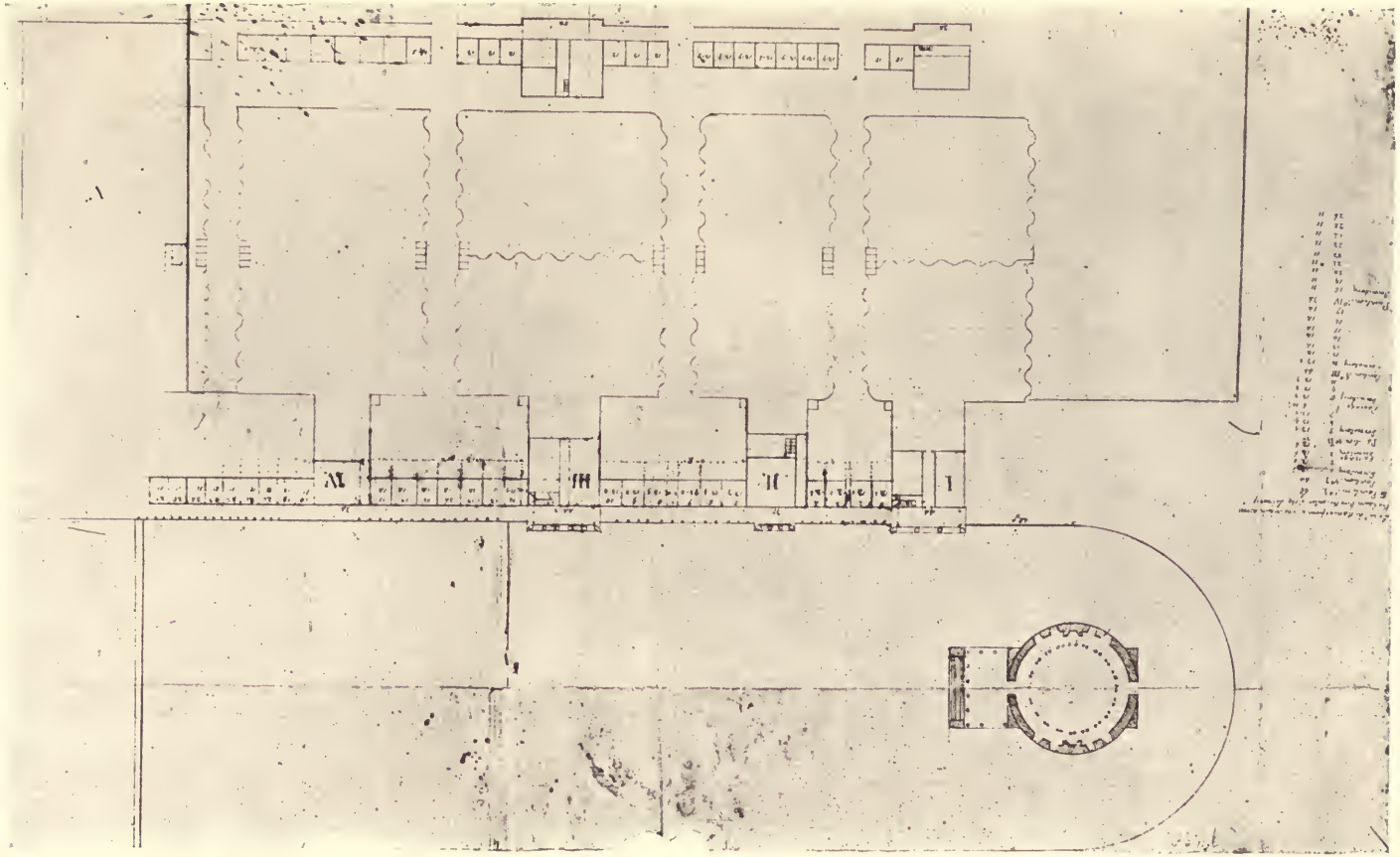

IV
III
II
I

PLATE X. One of Jefferson's detail drawings for the railing above his Tuscan arcade.

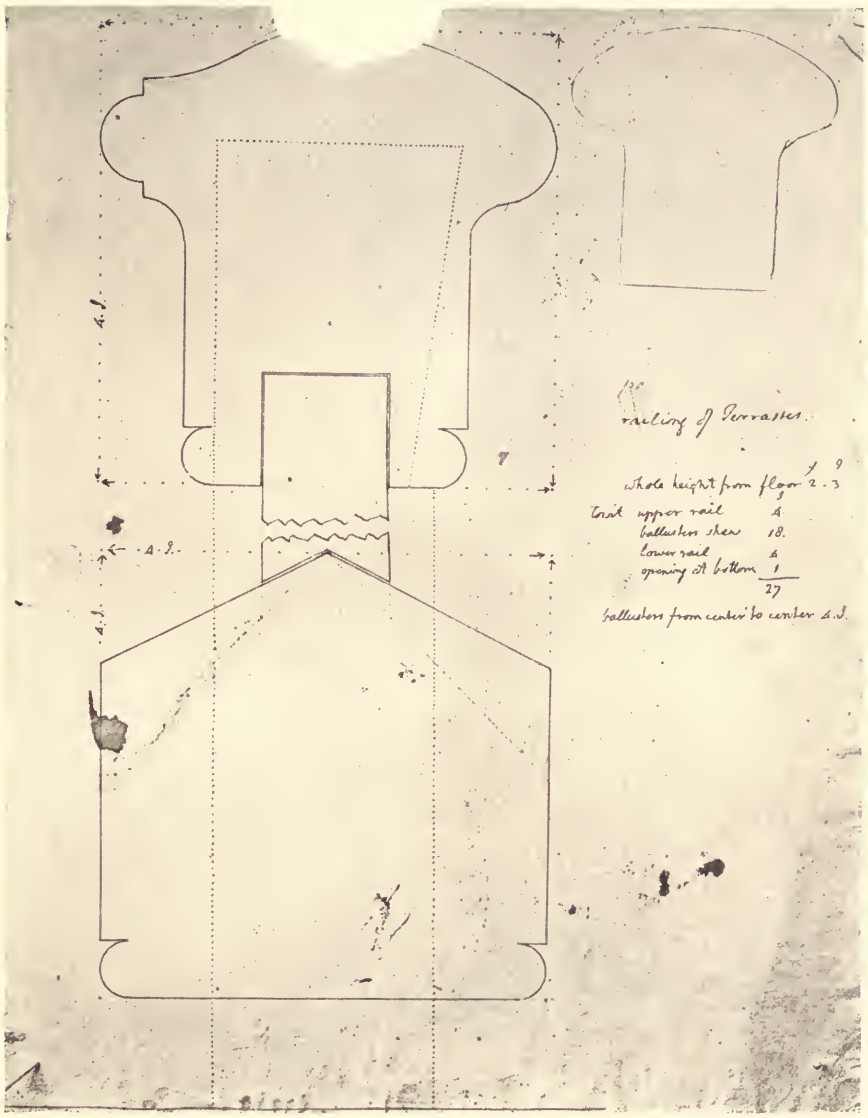

4.9.
4.9.
4.9.
Railing of Terrasses.
Whole height from floor 2.3 1/2 9
Trist upper rail 4
balusters shew 18.
lower rail 4
opening at bottom 1
27
balusters from center to center 4.9.

PLATE XI. Jefferson's specifications for marble capitals he is ordering through Thomas Appleton at Sivorno, Italy.

Specification of the Corinthian & Ionic capitels wanting for the University

for Pavilion N°. II. West

4. Corinthian capitels for columns whose inferior diameter is 28. I. English. X it's diminished diam. 25 2/10 I. to be copied exactly from the Corinthian capitel of Palladio, as given in his I.st Book wherein he treats of the orders in general and it's 17.th chapter in which he describes the Corinthian capitel particularly, the drawing of which is in plate XXVI Leoni's edition publ.d in London 1721.

for Pavilion N°. IV. East

2. Corinthian capitels for columns whose inferior diam.r is 24. I. & diminished diameter 20 8/10 I. to be copied from those of the Thermae of Diocletian at Rome. This is not in Palladio, but is given by other authors, and particularly by Errard and Chambray in their Parallele de l'Architecture antique et moderne. Paris 1766. pa. 79 plate 33. I should prefer however to have only the cavole of the leaves carved, and it's cavetto plain, as may be seen in Scamozzi. Chambray's edition B. II. chapt. V. Article 8. pa. 150. plate 36. nor would I require it's volutes or caulicoli to be so much carved, as those of Diocletian's Baths, finding the simplicity of those in Palladio preferable.

2. Corinthian half capitels, for half columns of the same model as the 2. columns last mentioned, being for the same range.

for Pavilion N°. I. East

4. Ionic capitels for columns whose lower diam. is 30 I. & diminished diam. 26 1/2 to be copied from those of the temple of Fortuna virilis in Palladio, observing that the two middle capitels shew volutes in front and back, and ballusters in their flanks, and the two corner capitels are what he calls angular, that is to say presenting Volutes in their front & outer flank, and ballusters in their back and inner flank. see Palladio. B. IV. Ch. 13. pa. 65. plate 37. Leoni, London edition

for Pavilion N°. III. West

6. Ionic capitels for columns whose inferior diam. is 30. I. and diminished diam. 26 - to be copied from the capitel of Palladio as given in his I.st Book wherein he treats of the orders in general, and it's 16.th chapt. in which he describes the Ionic capitel particularly, the drawings of which are in plates 20. 22. pa. 22. Leoni's London edition, presenting volutes in front & back & ballusters in their flanks

In all these cases the Astragal of the upper end of the shaft must be subjoined to the Corinthian capitel in the same block, because our columns being of brick, stuccoed, it cannot be carved on them: and to the Ionic capitels must be subjoined not only the Astragal, but a bit of the shaft itself as low as the bottom of the Volutes.

PLATE XII. Specifications of another capital which Jefferson is ordering from Appleton, containing a criticism of those previously supplied.

to include (besides it's halfround member or Torus) the cavetto & listel below it, which meets the naked of the diminished shaft, and which will be seen in the same plate of Palladio subjoin-ed to the part B. of the capitel.

We have agreed with Giacomo Raggi for 10. bases and 2 diagonal pilaster bases for the same columns according to the agreement inclosed as he is not in circumstances sufficient to answer any failure of con-tract, we have of necessity been obliged to ask your superintendance of his performance; and he places himself under your attentions as much as he would be under ours were we present. should you perceive any manifest intention on his part to abandon the performance, or any certain incompetence to the fulfilment, we will pray you to declare the contract dissolved and to warn him to proceed no further. but if he goes on diligently and hopefully we wish him to recieve all reasonable indulgence. ~~200~~ 50. D have been advanced here to him on account. should he fail in his contract, I will ask the favor of you to inform me without delay at what price we can get such bases furnished to us as our agreem specifies. this will determine us whether to get them here or there. I will also ask the favor of you immediately on reciept of this, to inform me at what price we can be furnished there with squares of marble to pave the floor of the portico of the Rotunda, polished and accurately squared ready to be laid down, the squares to be 1 foot square. we shall also have occasion in the interior for 40 Composite capitels of wood, for columns whose diminished diameters are 15 11/16 Inches English, to be copied from Palladio B 1 c. 10 pl 30. I will thank you also for the best engraving of the Pantheon on a single sheet to be had with you.

Dear Sir

Monticello Oct. 8. 23

In my letter of July 10. I informed you that the Capitels you had forwarded were then on their way to Richmond. they came to hand here on August and are now put up. they are well approved on the whole, and particularly as to the quality of the marble. but I am instructed to mention some particulars not fully executed

1. in the Corinthian capitels there is a want of the cavette and listel of the Astragal which intervenes between that and the naked of the shaft and which should have been subjoined to the block of the capitel

2. in the Ionic capitels from Palladio, the Astragal is plain instead of being carved. as in Palladio B.1 pl. 22. Q. so also in those from the temple of Fortuna virilis, the same members are plain instead of being carved, as in Pallad. B. 4. pl. 37.

The Visitors of the University had their meeting the day before yesterday, and I am now authorised to apply to you for the capitels of the columns of our Rotunda, agreeable to the following specifications.

Ten Corinthian capitels of marble for columns whose diminished diameters are 2 feet $0\frac{4}{10}$ inches English measure.

Two Corinthian semi-capitels for Pilasters, or halves of square columns of the same diminished diameter cut diagonally thus  so as to present in front and flank each at the corners of the building. all to be copied exactly from those of the Parthenon, as represented by Palladio. B. 4. chap. 20. pl. 60. Leoni's edition.

Our columns being of brick, in which no moulding can be worked it is necessary to subjoin to the capitel the Astragal of the column making it a part of the same block. and the term Astragal is meant

Appleton Tho^{s}. Oct. 8. 23

to include (besides it's halfround member or Torus) the cavetto & listel below it, which meets the naked of the diminished shaft, and which will be seen in the same plate of Palladio subjoin-ed to the part B. of the capitel.

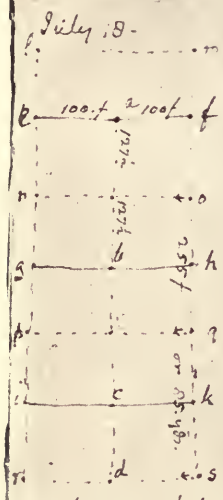
We have agreed with Giacomo Raggi for 10 bases and 2 diagonal pilaster bases for the same columns according to the agreement inclosed as he is not in circumstances sufficient to answer any failure of con-tract, we have of necessity been obliged to ask your superintendance of his performance; and he places himself under your attentions as much as he would be under ours were we present. should you percieve any manifest intention on his part to abandon the performance, or any certain incompetence to the fulfilment, we will pray you to declare the contract dissolved and to warn him to proceed no further. but if he goes on diligently and hopefully we with him ~~to~~ recieve all reasonable indulgence. ~~200~~ 50. D have been advanced here to him on account. should he fail in his contract, I will ask the favor of you to inform me without delay at what price we can get such bases furnished to us as our agreem^{t} specifies. this will determine us whether to get them here or there.

I will also ask the favor of you immediately on reciept of this, to inform me at what price we can be furnished there with squares of marble to pave the floor of the portico of the Rotunda, polished and accurately squared ready to be laid down, the squares to be 1 foot square we shall also have occasion in the interior for 40 Composite capitels of wood, for columns whose diminished diameters are 15 11/16 Inches English to be copied from Palladio B 1 c. 18 pl 30. I will thank you also for the best engraving of the Pantheon on a single sheet to be had with you.

PLATE XIII. University of Virginia. First page of Jefferson's pocket note-book showing data for July 18, 1817, the day on which he staked out his plan; also additional notes concerning compass reading added about two years later, Dec. 7th, 1819.

1817 Operations at U. for the College

July 18-



a. the place at which the theodolite was fixed being the center of the Northern square & the point destined for some principal building in the level of the square l.m.n.o

the fall from a. to d. 18.f.

* from a. to d. the bearing magnetically S. 21° W
add for variation 2½
S. 23½ W

? the true meridian was that day 2½° to left of magnetic.

b. is the center of the middle square, and at g. we propose to erect our first pavilion.

c. is the center of the Southern square.

Locust stakes were driven at l.a.f.g.b.h.i.c k. and at d. is a pile of stones.

each square is to be level within itself, with a pavilion at each end to wit at e.f. gh. i k. and 10 dormitories on each side of each pavilion filling up the sides of the square.

from a. to b. was measured 255 f. or 85. yds, b.c. the same, & c.d. the half.

from the points a. b. c was measured 100. f. each way to e.f. gh. i.k. making thus each square 255 f. by 200. f. = .8541 of an acre or nearly 17/20

from central line of library		f	
to Pavilion No I.		68	Whole 68.
Pavilion	-	44	112
Dormatory	1	13-6	125-6
	2	13-6	139.
	3	13-6	152-6
Pavilion No	4	13-6	166.
	II	37.	203
Dormatory	5	13-9	216-9
	6	13-9	230-6
Passage	7	13-9	243-3
		6-10½	251-1½
Dormitory	8	12-9	264.
	9	13-9	278-7½
	10	13-9	292-4½
Pavilion No	III	44.	336-4½
Dormitory	11	13-9	350-1½
	12	14	364-1½
	13	14	378-1½
	14	14	392-1½
	15	14	406-1½
	16	14	420-1½
Pavilion No	17	14	434-1½
Dormatory B	18	34	468-1½
	19	11	479-1½
	20	11	490-1½
	21	11	501-1½
	22	11	512-1½
	23	11	523-1½
	24	11	534-1½
	25	11	545-1½
	26	11	556-1½
		11	567-1½

from central line of library		f	
to Hotel A		68	Whole 68
Hotel A		50	118
Dormitory		15	133
		15	148
		15	163
		15	178
		15	193
		15	208
		15	223
Necessary		15	238
Dormitory		12	252
		15	267
		13	280
		15	295
		15	310
		15	325
		15	340
		15	355
		15	370
Hotel B.		34	404

* Dec. 7. 19. I took the bearing accurately of the range of pavilions, & found it magnetically S. 21. W. The variation of the needle being that day 2° E. of the true N. or to the right. it is probable that at the operation of 18. the meridian of W. mount was inadvertently read 2° at the true one

PLATE XIV. Part of specification for Rotunda, showing method of reduction after the Pantheon.

Rotunda, reduced to the proportions of the Pantheon and accomodated to the purposes of a Library for the Univers. by with rooms for drawing, music, examinations and other occas: ry purposes.

the diameter of the building 77. feet, being $\frac{1}{2}$ that of the Pantheon, consequently $\frac{1}{4}$ it's area, & $\frac{1}{8}$ it's volume:
the Circumference 242. f.

the height. foundation	f. 3-0	foundation	3-0	3½ bricks thick.	height 3 × 42 × 242	= bricks 30,492
basement	7-6	basement	7-6	3.	7½ × 36 × 242	65,340
Columns	28.6	lower rooms	17-	2½	17 × 30 × 242	123,420
entablature	5-7½	to spring of arch	10-4½	2	18.4 × 24 × 242	106,608
Attic	13-9	to top of wall	12-6	1½	12-6 × 18 × 242	54,450
	58-4½ = 58.35		58-4½	the whole circular external wall		380,310
				front & back buttresses of 12 f. area each		263,275
				2. massive chimnies, serving as buttresses		44,800
				3 semielliptical partitions of 2. bricks thick.		108,450
						796,835
				Shafts of 12. columns f. 3. diam. 23½ high		315,840
						1,112,675

to thicken the walls a half brick more from bottom to top, adds 0.4702 by making in the whole 1,197,377. or say 1,200,000. which is advisable.

diameter mod. 1 = f. 3.
diminⁿ diam. 0-5½ = 2-8.4

base	30 = 1-6	f. 9	
shaft	7-50 23-6	= 20-6	
capital	1-10. 3-6		
architrave	38 = 1-10.8		
frize	20½ 1-8.1	= 5-7.2	
cornice	45½ 2-7.3		
Attic base	mod. 12½ = 3-		
shaft	363 9.	13-9.	
surbase	69 1-9		
		48-0	

diam. of Attic pilaster f. 2 - 8.6
intercolomation 2. diam. = 6f
projection of Cornice 47 3/4 = f. 2 - 8.65
Pediment. span f. 52 - 5.75
height 11-8

breadth of Portico mod. 16 = f. 48
plinths of Dome 11.1
room of 2d - 8f
19.1

Internal heights

foundation	f. 3-
pedestal or basement	7-6
floor, or step	1-
Lower rooms diam.	16-
floor	1-
Library. wall	29-6
Cove ⅓ dome diam the	19-
2d ⅓ of 2d	77-

} 48-6 height of dome room

Library.

to set a circle of columns at a proper distance from the wall, & so, with their entablature as the height of the wall within, to the spring of the arch, the diameter must f. 9-6, then they are arranged must be 27.f (or 8 f diam.) circumference 113. diameters = f. 69.5 to correspond with the windows there must be 20. intercolomations.
and that the intercolomation may not be too large for the Corinthian order we must
an intercolomation of 3. diameters will be f. 4-6
2. columns = 3-
space between them 20 = 1-
8-6 × 20 = f. 170

PLATE XV. Section of Library or Rotunda.

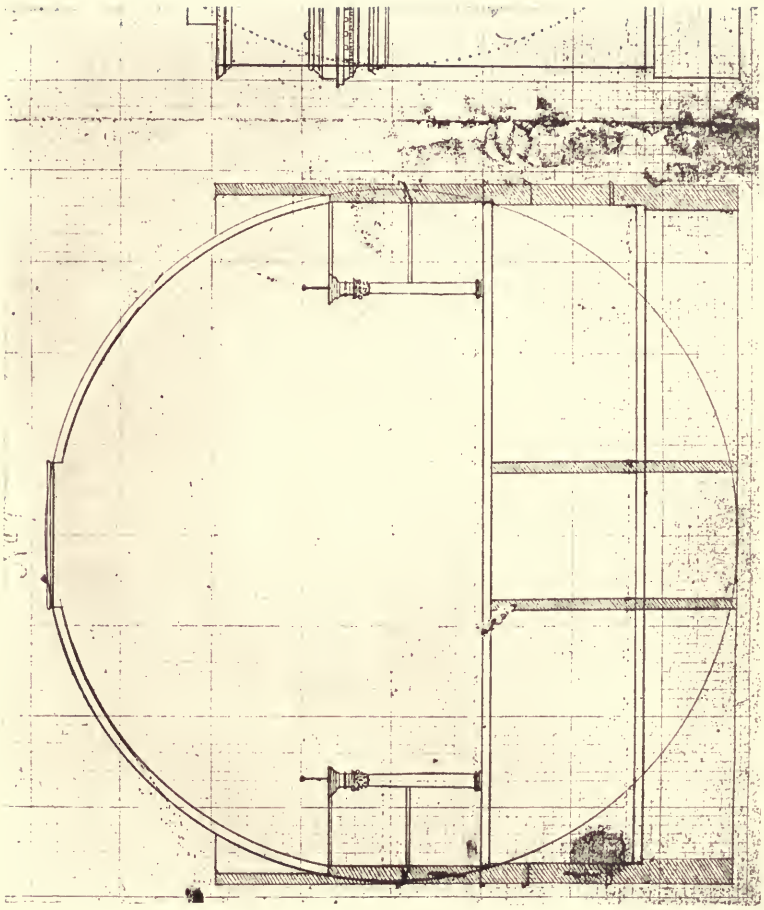


PLATE XVI. Plan of first and second floor of Library or Rotunda.

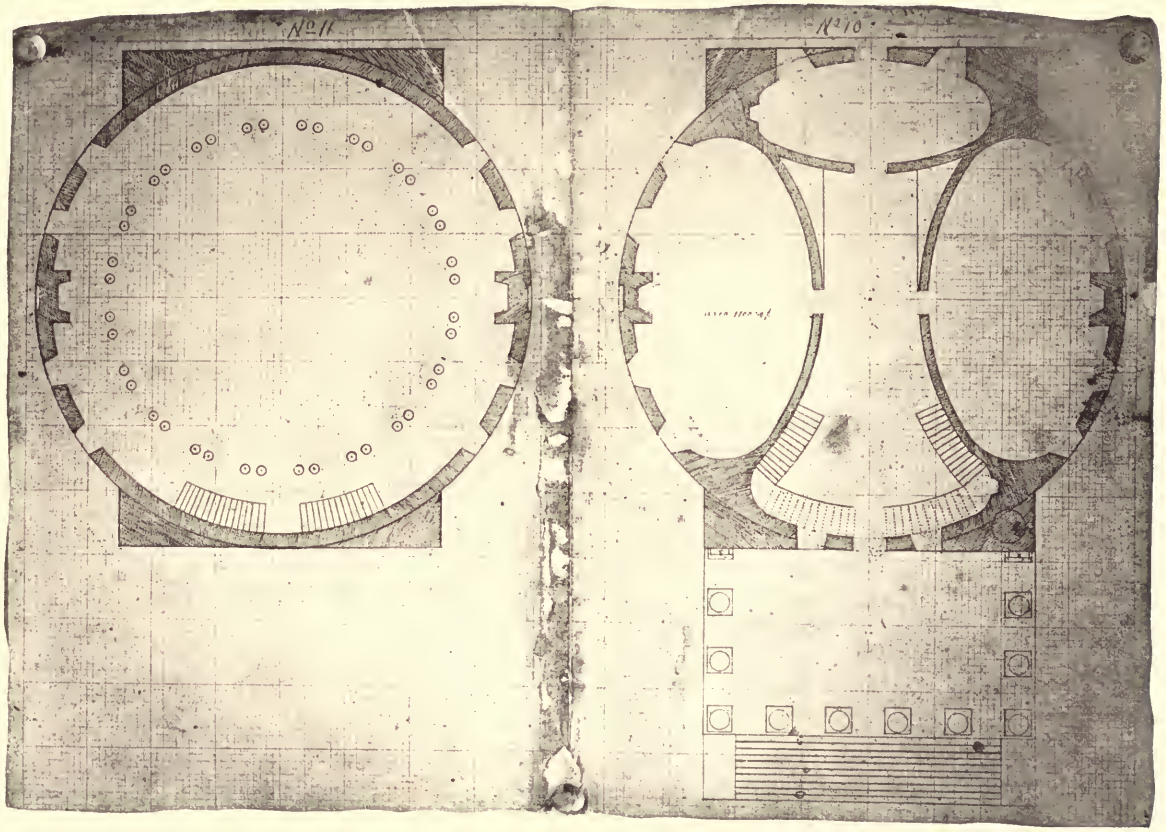

N°11
N°10

PLATE XVII. Elevation of Library or Rotunda.

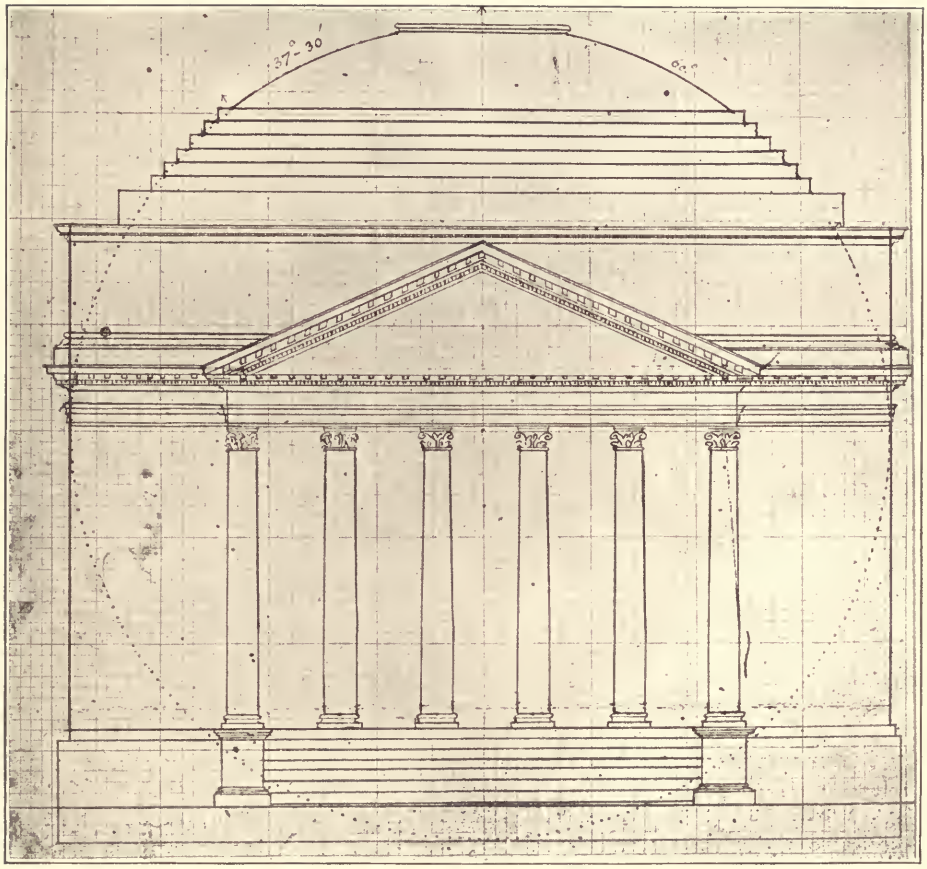

37° 30'

PLATE XVIII. Specification for the domed roof of the Rotunda.

Additional Notes for the Library.

The estimate of bricks on the first drawing was - - - - - 1,112,675

if we make the wall half a brick thicker from bottom to top it adds 84,702

1,197,377.

If we make the Attic of wood, instead of brick, it deducts 79,920

leaving the corrected estimate for the whole Rotunda a 1,197,457.

the Terrass on each side is to be in breadth equal to the flanks of the Portico.

it will be 61-6, but deducting for the descent of the steps it may be considered as 54 f. long

the foundation & Basement being 2. br. thick & 10½ f. high & a rush walls 54,432

so that the Building & it's 2. terrasses will take - - - - - - - 1,171,889.

The thickness of the wall at top, to wit, at the spring of the Vault of the roof is 22. I.

on the top of the wall lay a curbed plate, in Delorme's manner, consisting of 4. thickness of 3. I. each. 22. I. wide, pieces 12. f. long, breaking joints every 3. f. bolted through with bolts of iron, having a nut & screw at their end

on this curved plate the ribs of the roof are to rest.

the ribs are to be 4. thicknesses of 1. I. plank, in pieces 4 f. long. breaking joints at every foot.

they are to be 18 I. wide, which leaves 4. I. of the plate for the Attic upright to rest on.

the ribs are to be keyed together by cross boards at proper intervals for the ribs to head in as they shorten

the curb of the sky light to be made also in Delorme's way, but vertically.

the fire places & chimnies must be brought forward so that the flues may not make a hollow in the main walls. they will thus become buttresses.

PLATE XIX. Specification for pavilion X, illustrating Jefferson's method of determining his attic pilaster, also representing the only time in the entire set of records when the personal pronoun I occurs — using it to acknowledge a personal limitation.

Pavilion N°X. East. Doric of the Theatre of Marcellus. the columns to have no bases. diam. = 3.f

the cornice is (a) 37.5 = f 1-10.5
frize . . . . 45. = 2-3
Architrave 30' = 1-6
whole Entablature (b) 5-22.5 = 5-7.5
Capitel 0-30 = 1-6
Shaft 7-0 = 21-0
Order entire (c) 9-22.5 = 28-1.5
diam² diam 40' = 28-8
1' = .6 60' = 36.1.

Upper joists = f 9 1-0
upper room clear 12-0.75 (d)
middle joists 9 1-0
lower room clear 12-0.75 (d)
from floor to zocle 2
28-1.5

Kitchen ceiling above zocle 1. f } pitch 4
from Zocle to Kitchen floor 7 } kitchen 8.f
To bottom of foundation 2
10.

Corrections.
(a) for 37.5 say 42.5
(b) 1-5 2½ say 1-5 7½
(c) 9-22½ 9-27½
and add 3.f. to each of the cor- -responding measures in figs 1 & 2.
(d) for 12-0.75 say 12-6.5
(e) 43-11.4 34-0.6 & 15.2
(f) 9-9.2 7-8.287

The Portico Tetrastyle. the front as follows.

wing 1. Trigl. 9 75' = 3-9 + 1. dim² semidiam. 24' = 1-2.4 = 4-11.4
Portico 1. dim² semid. + 7. Trigl. + 1. dim² semid. = ... 28-7.8
wing 1. Trigl. + 1. semid. 4-11.4
whole breadth of building 38-6.6

projection of Cornice 5.4 = 2-8.4
Pediment. Span (a) 43-11.4 (b) height 9-9.2
from zocle to upper floor - 15-0.75
deduct Tuscan order entire 11-7.86
descent from upper floor to terras 3-4.89

Shaft of Chimney 4 3. by 4 3.
to wit 6. flues of 9. by 16 clear
Stairs. 18. risers of 8½
17. treads of 10
to wit 1st flight 8.
quart° pace 1
2d. flight. 8 } = 17.

The Attic. I have never seen an Attic pilaster, with the measures of it's parts minutely expressed: except that of the Temple of Nerva Trajan Palladio B. III. P. 18. that temple is overloaded with ornaments, and it's Pilaster frittered away so minutely in it's mouldings, as to lose all effect. I have simplified these mouldings to suit our plainer style, still however retaining nearly their general outlines and proportions.

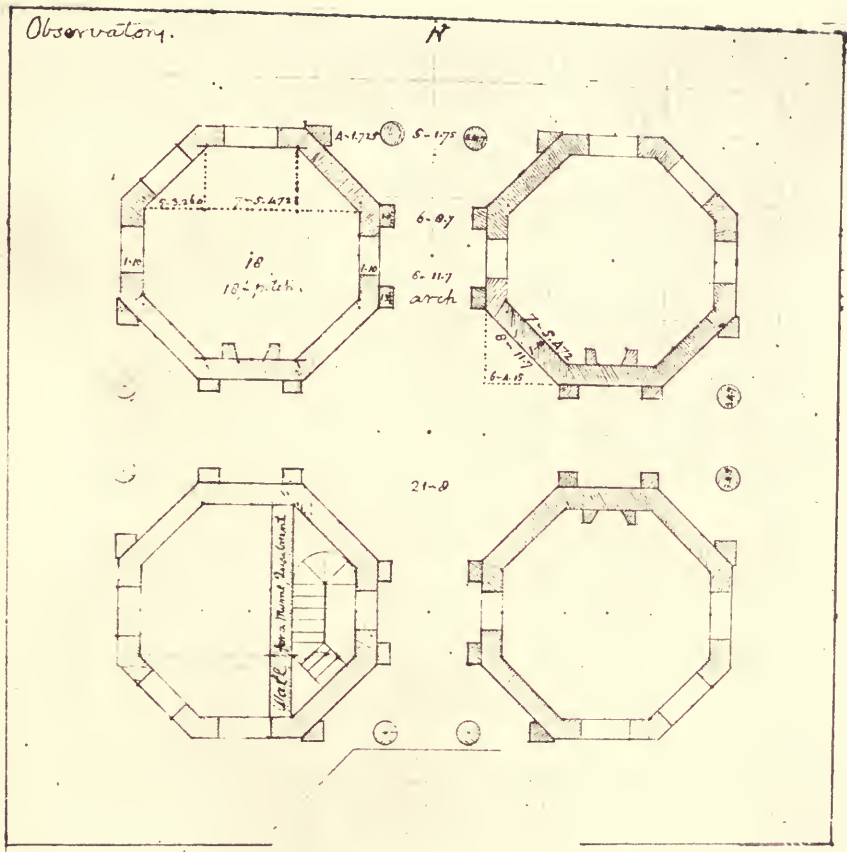
Our pediment being 7-8.25 in height, the base & die of the Attic must be that, or ever so little more. the whole height of the Attic being divided into 8. parts, the cap or surbase is 1 part. the die 5. parts, and the base 2. parts.
Take 13½ for a part and the base and die will be 92.75
deduct the height of the pediment 9.25
leaves the spare space between the Apex & cap only .5 or ½

the cap or surbase will be 1. part = 13.25
die . . . . . 5. parts = 66.25
base . . . . . 2. parts = 26.50
whole height of Attic . . . . . 106. or 8-10

the whole height being 8. parts of 105' each or 840'. These divided by 106. give to nearly 8' to 1. that the small mouldings of the cap & base may be calculated at that without sensible error

the Cavetto above the cap is not reckoned a part of it. it should be on this case 70. or say 9. in height and 85' or say 11. within the projection.
the breadth of the pilaster is that of the diminished diameter of the column, to wit 28.8

PLATE XX. University of Virginia. One of Jefferson's plans for an observatory which he later condemned. (The specifications for the building are written on the back and are printed in this text.)



See an original lady bather plan by Hassler in the Am. Philosoph. transactions. New series. Vol II. P.I. X. 1825
see Abert report, 1st Rep. 2 mil. Reco. p.o. 107. pl IX. C.

PLATE XXI. University of Virginia. Jefferson's sketch for a bell which would ring the hours automatically and yet permit of being rung independently.

Plan of a Clock for the Rotunda, the bell to serve for ringing also.
The bell to be placed immediately on a stem on the ridge pole of the pediment
the dial plate to be in the centre of the tympanum of the pediment
the bell tongue to vibrate in the vertical plane which passes through the ridge pole within the bell.
the clock hammer to vibrate in the plane of the ridge pole without the bell.

the clock weights to descend in the cylindrical cavities of the wall on each side.
the bell rope in one of them.
the clock to have an hour hand only with divisions for 60' between each hour. of the dial to be 7 f. diam. the hour cipher 22 I. and the minutes 0.36 I.
to be wound up on the back side of the works

side view shewing bell hammer b.

* the stem forks as well for the clock as to make a vacancy for the bell tongue to vibrate thro.

front view shewing bell-tongue a.

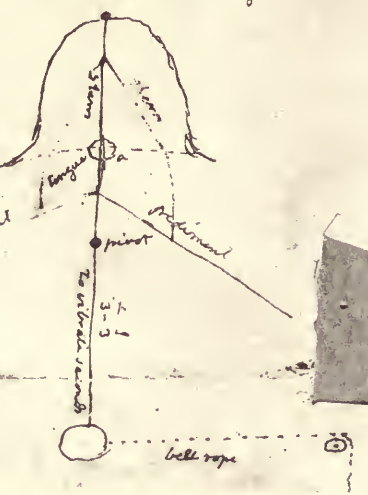


PLATE XXII. University of Virginia: plan of existing conditions.

UNIVERSITY OF VIRGINIA

CHARLOTTESVILLE—VA.

PLAN OF EXISTING CONDITIONS

SCALE 1 INCH = 500 FEET

500 300 100 0 300 1000 1500

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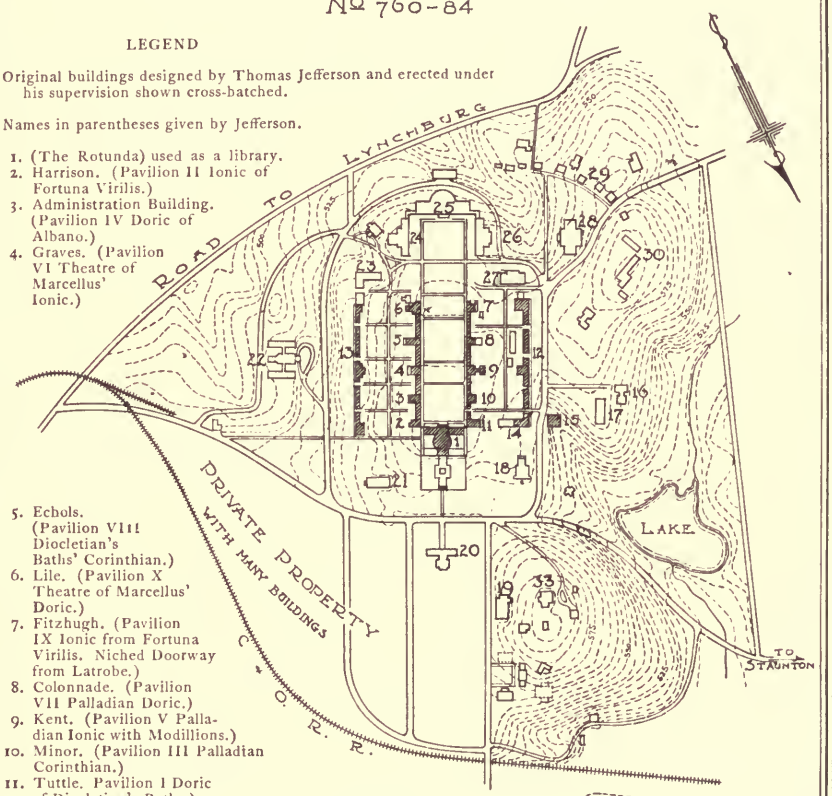
LEGEND

Original buildings designed by Thomas Jefferson and erected under his supervision shown cross-batched.

Names in parentheses given by Jefferson.



1. (The Rotunda) used as a library.
2. Harrison. (Pavilion II Ionic of Fortuna Virilis.)
3. Administration Building. (Pavilion IV Doric of Albano.)
4. Graves. (Pavilion VI Theatre of Marcellus' Ionic.)
5. Echols. (Pavilion VIII Diocletian's Baths' Corinthian.)
6. Lile. (Pavilion X Theatre of Marcellus' Doric.)
7. Fitzhugh. (Pavilion IX Ionic from Fortuna Virilis. Niched Doorway from Latrobe.)
8. Colonnade. (Pavilion VII Palladian Doric.)
9. Kent. (Pavilion V Palladian Ionic with Modillions.)
10. Minor. (Pavilion III Palladian Corinthian.)
11. Tuttle. Pavilion I Doric of Diocletian's Baths.)
12. (West Range.)
13. (East Range.)
14. Physiological Laboratory. (Hotel A.)
15. Medical Hall.
16. Anatomy Hall.
17. Chemical Laboratory
18. Chapel.
19. Gymnasium.
20. Madison Hall Y.M.C.A.
21. Brooks Museum.
22. Hospital.
23. Randall Hall.
24. Physical Laboratory.
25. Cabell Hall.
26. Mechanical Laboratory.
27. Commons.
28. Law Building.
29. Dawson's Row.
30. Monroe Hill.
31. Varsity Athletic Field.
32. Practice Field.
33. President's Mansion.

PLATE XXIII. University of Virginia: study for development.

UNIVERSITY OF VIRGINIA

CHARLOTTESVILLE VA

STUDY FOR DEVELOPMENT

SCALE 1 INCH = 500 FEET

500 300 100 0 500 1000 1500

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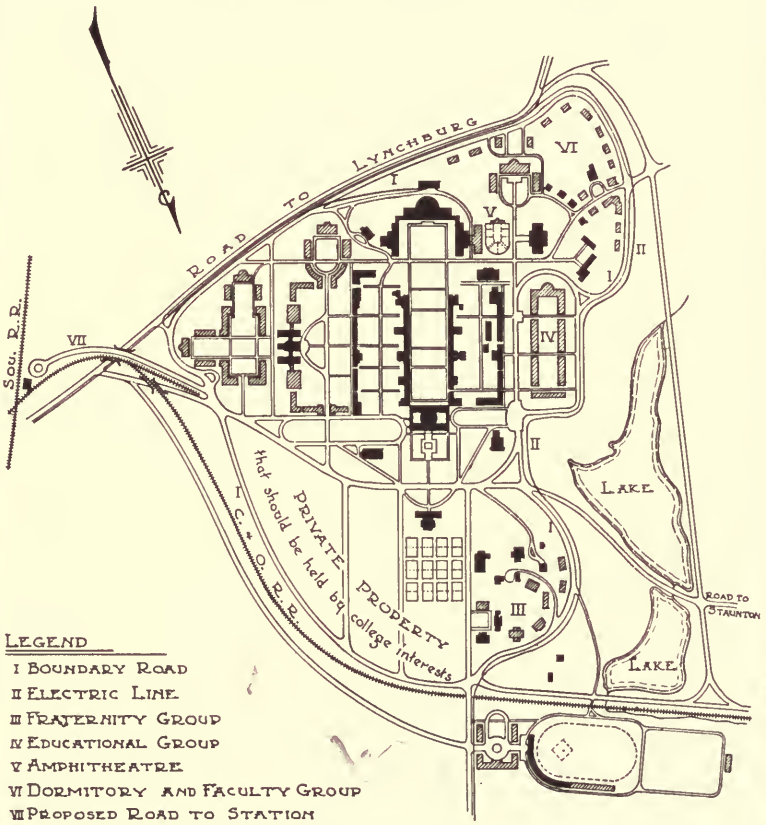
EXISTING BUILDINGS ■ PROPOSED BUILDINGS ▨



LEGEND

I BOUNDARY ROAD
II ELECTRIC LINE
III FRATERNITY GROUP
IV EDUCATIONAL GROUP
V AMPHITHEATRE
VI DORMITORY AND FACULTY GROUP
VII PROPOSED ROAD TO STATION

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